AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

ORANGE JUDD COMPANY, Publishers and Proprietors, 245 Broadway.

ESTABLISHED IN 1842.
German Edition issued at the same rates as in English.

TERMS: $1.50 per Annum in Advance, post-free; Four Copies $5.—Single Number, 15 Cents.

VOLUME XXXVIII.—No. 11. NEW YORK, NOVEMBER, 1879. NEW SERIES—No. 394.

THANKSGIVING IS COMING.—DRAWN BY EDWIN FORBES.—*Engraved for the American Agriculturist.*

Many of our readers—and they need not be very old—can recollect when Thanksgiving day was an exclusively New England Holiday, and in which the others of the older States did not participate. As New Englanders migrated westward, and helped to found new States, they carried with them their usage of annually observing a day of thanksgiving, it is thus that the custom has spread to other States, until now, having been confirmed by the action of recent Presidents, Thanksgiving has become no longer a partial, but a National Holiday. It is well that this, *originally a farmer's holiday*, has a general observance. It is most fitting that the farmers of this broad land should, on one day in the year, gather in their scattered children, and in one of the Holiest of Temples—*Home*—give thanks for that upon which the prosperity of the nation rests—the abundant harvest. It is pleasant to think upon Thanksgiving day in its higher aspects, but not the less so in its associations and its minor influences. Being emphatically a home holiday, it more than all others affects the homes of the land, not less the homes in towns and cities than homes upon farms, and long before the day is at hand the thought that "Thanksgiving is coming" controls the movements in households everywhere. The home that is not upon the farm is none the less to observe the day; it, too, is to have its "feast of fat things," and the city housekeeper looks to her sister in the country for the fatted turkey "wherewith to make merry." Our artist, in the above engraving, shows one of the signs that all over the country foretell that "Thanksgiving is coming," and that the influence of the day is far-reaching. A large share of the demand for the turkey, the bird that has become so essential to the thanksgiving feast, is supplied by those farmers whose flocks number hundreds; but aside from these, the turkey plays an important part on many small farms, and the bird, besides "furnishing forth" the material for many a home feast, is in itself a cause for grateful thanks. Many a mother, to help the family purse; many a daughter, in pride at being independent of her father's hard earnings, to meet her personal

COPYRIGHT, 1879, BY ORANGE JUDD COMPANY

ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND CLASS MATTER.

wants, looks to her flock of turkeys; and now, as Thanksgiving draws nigh, she counts and feeds her flock with pleasant anticipation of the day in which the hopes of many days will be consummated. Blessed be the observance which touches so nearly so many human hearts. Blessed be the day which brings joy to so many homes—which, to the wanderer, wherever he may be, turns his thoughts towards home. And when has the American farmer had greater occasion on Thanksgiving Day than now to say: "Oh! give thanks unto the Lord, for He is good, and His Mercy Endureth Forever!"

Contents of this Number.

Among the Farmers, No. 46: The Fairs—Thoroughbreds or Grades—"Holderness" Cattle.....459-460
Ashes, Experiments with Canada.....465
Back-firing.....*Illustrated*..456
Banks, Restoration of River.....4 *Illustrations*..461
Beds, Ornamental in Winter.....458
Bee Notes for November.....456
Beef, How to Dress.....2 *Illustrations*..461
Borer, The Clover Root.....*Illustrated*..463
Bows, Fastening Cattle with.....3 *Illustrations*..466
Box, A Weighing, and Attachments..3 *Illustrations*..463
Boys' and Girls' Columns:—*The Doctor's Talks:* Internal Forces—Gravity—Specific Weight—Laws of Falling Bodies. *The Doctor's Correspondence:* Gold Fishes—What is Gas?—Curious Hats. Illustrated Rebus. All Boys and Many Girls. Our Puzzle-Box. The Second Drawing Lesson. Spiders, Spinnerets, and Cobwebs. How Bears Go to Market. The Young Carpenter...15 *Illustrations*..471-474
Branding Cattle.....463
Bridge, A Floating or Pontoon.....3 *Illustrations*..462
Buildings, Fire-proof Farm.....3 *Illustrations*..464
Butter, Packing, for Winter.....464
Calender for November.....448
Cart, A Farm.....2 *Illustrations*..463
Catalogues, Nurserymen's, etc., Acknowledged.....482
Correspondence, Editorial.....457
Dew, Effects of, Upon Pastures.....464
Fair List for November.....481
Farming, Poultry.....464
Fish-Pond, Small Artificial.....461
Flower Garden and Lawn.....450
Fowls, The Langshan.....*Illustrated*..459
Fungus, The Apple-Leaf.....5 *Illustrations*..468
Garden, Kitchen and Market.....450
Garden, The Fruit.....449
Grapes, Some New White.....468
Greenhouse and Window Plants for November.....450
Harvard and Arboriculture.....453
Hints and Helps for Farmers: Fastening Pig in Wagon—A Portable Fodder-Rack—A Leaf Rake—Convenient Bag-Holder.....4 *Illustrations*..462
Hints for November Farm Work.....448
Household:—*Home Topics:* Transplanting Children—Care of Jelly and Preserves—Jelly and Marmalade—Fruit Stains. Wood Box, Another. Chair, A Feather. Mop Wringer, The Communities'. Canary Birds. Berries, Wild Autumn. Gifts, Useful Bridal.....5 *Illustrations*..469-471
Humbugs, Sundry.....450
Ivy for the House.....468
Mallow, The Great Scarlet Rose.....*Illustrated*..467
Markets for November.....450
Meal, Cotton Seed.....460
Orchard and Garden Notes for November.....449
Orchard and Nursery.....449
Package, A Portable for Wheat.....2 *Illustrations*..469
Paddock and Hovel for Horses.....2 *Illustrations*..464
Root-Cellars and Root-Houses.....4 *Illustrations*..458
Shading a Greenhouse.....*Illustrated*..469
Smoke-Houses.....4 *Illustrations*..460
Sugar-Beet Culture, Benefits of.....462
Trees, Unprofitable Fruit.....468
Trefoil, The Canada Tick.....*Illustrated*..467
Thanksgiving is Coming.....*Illustrated*..447
Thanksgiving, Reasons for.....452
Tools, Well-Boring.....13 *Illustrations*..465-466
Ventilator for Root Pit.....2 *Illustrations*..460
Wheat, Cultivated.....466

INDEX TO "BASKET," AND OTHER SHORT ARTICLES.

Agriculture, German....481
Apples for Cows.....480
Bark, Peeling.....480
Binders, Self.....454
Bone-dust, Home-made..481
Brick Making.....454
Cheese, Colored.....454
College, the Amer. Veter455
Convention, International Dairymen's.....454
Crop, Sugar, European..481
Calves, Management of..480
Calves, Raising.....480
Caponizing.....480
Celery, Preserving.....453
Congress, The Nat. Ag..455
Dairy Goods, Advance in.481
Depression, Agricultural.454
Disease in Poultry.....480
Douinique-Leghorns....481
Draining, Surface.....480
Duchess, present value of481
Exercise for Fowls.....481
Fair, N. J. State.....455
Fair, West N. Y. Agr'l..454
Farm Products, Sale of..482
Farmers, Dutch.....480
Farms, New.....455
Fever, Typhoid.....455
Fleeces, Heavy.....481
Grapes, Hooker's.....452
Grass, Bermuda.....482
Ice-House Building.....454
Illinois Farm Products..455
Incubators.....480
Iowa Farming.....480
Jerseys, American.....481
Lime, Value of.....480
Mangels, Weight of.....480
Manure at $3 a Ton.....480
Mildew, Grape.....454
"Mr." or "Esq." or "0,"..454
Musk.....481
Mulleins.....454
Oyster, Value of.....480
Peanuts, Trade in.....481
Plants and Plant Food..454
Plowing Dry Land.....480
Poland Chinas, Australia455
Post, Rubbing for Pigs..481
Potatoes for Fat'g Hogs.481
Prairie Fires.....455
Rubber for Mops.....480
Scratches in Horses.....481
Shows, English Cattle..481
Society, Am. Pomo.....455
Society, Mass. Hort.....454
Society, N. Y. Hort.....455
Station, N. C. Experim'l 454
Tarring a roof.....480
Tea Culture in the U. S..454
Teat, Cows, Injury to...455
Tile Machines.....480
Time, Employers.....480
Weeding out.....481
Wheat, Early and Late..454
Wheat in Nebraska....480
Wheat, New Grades....481
Wood, Preservation of..480
Wool Producer, Longest.480

Calendar for November, 1879.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n rises.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n rises.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n rises.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	S	6 34	4 54	6 10	6 31	4 57	6 16	6 28	5 0	6 22
2	S	6 35	4 52	6 57	6 32	4 56	7 4	6 29	4 59	7 11
3	M	6 36	4 51	7 47	6 33	4 54	7 59	6 30	4 58	8 6
4	T	6 37	4 50	8 53	6 34	4 53	8 58	6 21	4 57	9 4
5	W	6 39	4 49	9 56	6 35	4 52	10 1	6 32	4 55	10 6
6	T	6 40	4 48	11 2	6 37	4 51	11 6	6 33	4 53	11 10
7	F	6 41	4 46	morn	6 38	4 50	morn	6 34	4 52	morn
8	S	6 43	4 45	0 10	6 39	4 49	0 12	6 35	4 52	0 16
9	S	6 44	4 44	1 19	6 40	4 48	1 20	6 36	4 51	1 22
10	M	6 45	4 43	2 31	6 41	4 47	2 31	6 37	4 50	8 32
11	T	6 46	4 42	3 46	6 43	4 46	3 44	6 38	4 50	3 43
12	W	6 48	4 41	5 4	6 44	4 45	5 1	6 40	4 49	4 54
13	T	6 50	4 40	sets	6 45	4 44	sets	6 41	4 48	sets
14	F	6 51	4 39	4 55	6 46	4 43	5 1	6 42	4 47	5 8
15	S	6 53	4 38	5 56	6 47	4 42	6 3	6 43	4 47	6 10
16	S	6 54	4 37	7 4	6 48	4 41	7 12	6 44	4 46	7 19
17	M	6 55	4 37	8 19	6 50	4 41	8 25	6 45	4 45	8 31
18	T	6 56	4 35	9 33	6 51	4 40	9 37	6 47	4 44	9 41
19	W	6 57	4 34	10 44	6 52	4 39	10 46	6 48	4 44	10 50
20	T	6 58	4 34	11 51	6 53	4 39	11 53	6 49	4 43	11 55
21	F	7 0	4 33	morn	6 54	4 38	morn	6 50	4 43	morn
22	S	7 1	4 32	0 56	6 55	4 37	0 56	6 51	4 42	0 57
23	S	7 2	4 32	1 58	6 56	4 37	1 57	6 52	4 41	1 57
24	M	7 3	4 31	3 0	6 58	4 36	2 58	6 53	4 41	2 56
25	T	7 5	4 30	4 1	6 59	4 36	3 59	6 54	4 41	3 55
26	W	7 6	4 30	5 3	7 0	4 35	4 59	6 55	4 40	4 55
27	T	7 7	4 30	6 4	7 1	4 33	5 59	6 56	4 40	5 50
28	F	7 8	4 29	rises	7 2	4 34	rises	6 57	4 39	rises
29	S	7 9	4 29	4 54	7 3	4 34	5 1	6 58	4 39	5 8
30	S	7 10	4 29	5 47	7 4	4 34	5 54	6 59	4 39	6 1

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
3d Quart.	7	1 11 mo.	0 59 mo.	0 47 mo	0 35 mo.	0 5 mo.
New M'n	13	7 55 ev.	7 43 ev.	7 31 ev.	7 19 ev.	6 49 ev.
1st Quart	20	2 5 ev.	1 53 ev.	1 41 ev.	1 29 ev.	0 59 ev.
Full M'n	28	4 13 ev.	4 1 ev.	3 49 ev.	3 27 ev.	2 5/ ev.

AMERICAN AGRICULTURIST.

NEW YORK, NOVEMBER, 1879.

Hints for the Work of the Month.

[*The Hints and Suggestions in these columns are never copied from previous years, but are freshly prepared for every month, from the latest experience and observations, by practical men in each department.*]

Plowing the Corn Stubble, should be made the first business of this month. In fact, the plowing under or otherwise disposing of all rubbish from gathered crops, should be done as soon as possible.

Green Manuring, is one of the cheapest and easiest methods of fertilizing land. A stubble plowed early this month, may be sown with rye, at a cost of less than $2 per acre, and the rye may be plowed under in the spring, April or May, and the ground sown with another crop. Otherwise the rye may be cut for fodder, and the ground used for oats. But an occasional green crop plowed in, will be found very useful in keeping up land, and rye is the only one that can be used at this season.

Roots after Corn.—A badly plowed corn stubble, is the worst possible ground for roots, and if these are to be grown next season, and corn stubble is to be plowed first, it must be plowed deeply, and all the corn-stubs well covered. Root culture requires good farming, and rough uneven plowing, with loose corn-stubs on the surface, is not good farming. A well plowed corn stubble may be worked with the disk harrow in the spring, and well fitted for roots, which are preferable to oats to follow corn.

Corn Fodder.—Corn stalks that are out in the field should be made safe, either by stacking or putting under cover, as soon as possible. Hay is scarce and will be dear, and fodder of all kinds is worth caring for; to expose it to the weather, as is too often done, is injurious and wasteful.

Root Pits.—Roots and potatoes will heat and "sweat," and if not well ventilated, or if the pits are not uncovered, they will decay. This should be carefully looked to, and the pits must not be completely closed, until all danger from heating is over. Roots yet undug, should be secured at once.

Surface Drains may be made to serve a very useful purpose. If the waste flows off from the ground in this way, sub-soil drainage may be unnecessary. But surface drainage is a waste, because some fertilizing matter is carried away, which would be left in the soil if the water soaked through it into under drains, and surface draining is therefore only a temporary expedient at the best. Surface drains may be used with advantage where land is not underdrained, and this is the season for the work.

Deep Drains.—Making drains is especially a work for this season. If a field, or part of one, or a low piece of land is properly drained each year, by and by the whole farm will be put into good condition. Patience and time are especially needed in farm work. One cannot do everything in one year, nor in ten, in many cases, so that a farmer should not be discouraged, if he cannot do all that he desires, in one or two seasons. If what is done is *completed*, as far as it goes, one should be satisfied.

Good Work.—One of the most important hints that we can offer to our fellow farmers, is to do only good work, for this only pays; and never to begin a job unless it can be well finished; for a job of work left half undone, is frequently worse than if not commenced. It is better to put off the beginning of a job, than to fail in carrying it through, by beginning before one is ready for the work.

The Chinch Bug has been unusually destructive the past season. Its winter harbors are in the stubbles and any standing weeds that remain in the fields. Doubtless the ravages of this pest are encouraged by the safe shelters it finds in this way. Wheat farmers may take a hint from this, that cleaner culture may be found an effective method of destroying this, and other pests, by depriving them of winter quarters.

Fences and Ditches.—Before the ground freezes, put fences and ditches in good order. Fence posts that are loose may be tamped solidly, and a stone rammed on each side will steady a post better than packing with earth. Mounding up around the posts will turn the water from them and save them from heaving. The weeds that have grown in the ditches, and the accumulations of leaves and rubbish, should not be left in them; remove all such and make a clear channel for the water to flow away.

Cows.—Dairymen have reason to hope for better things. An advance of 100 per cent on cheese, and 25 per cent on butter, is cheering, although, unfortunately, the dealers get all the benefit of it at present. The dairymen, however, will have the advantage in the future, and this will be an incentive to improve the condition of the cows. Winter dairying is a profitable business, and the best dairymen are gradually working into it, but it will be only the first-class dairymen who will succeed in it.

Winter Feeding for Cows.—The yield of milk and butter in the summer depends greatly upon the winter feeding. All the feed given to cows is not consumed without return. The manure gives a good dividend upon the outlay, and the animals are storing up energy and strength to be made available afterwards. The winter is the season for liberal and judicious feeding and not for "short commons," which is but another term for half starvation.

Regular Rations are absolutely necessary. Steady feed means steady thrift and profit. Scarcely any two animals have the same appetites. In feeding, observe closely and know the habits of each animal; the winter is the time for this study.

Mixed Feed.—Sameness palls upon the appetite; a variety of food encourages it. A good farmer loves to see his animals eat, and the more they eat, and healthfully digest, the greater are the owner's profits. Cut or pulped roots will be found the best basis for winter feeding, and with these, corn-fodder and oat straw may be given liberally, saving the hay until the early spring. Prof. Atwater's articles on feeding, published in the *American Agriculturist* in 1877, with numerous tables of rations, will make instructive reading for the present long evenings. It must be remembered, however, that, in giving its chemical character, the digestibility of the fodder is not taken into account. This is a practical matter which must be considered in connection with the theoretical estimates.

Horses.—The teams should not rest while a day's work in the field remains to be done. Good feeding is needed while work continues. Idle horses may run in a fenced yard or field, and hay or corn-fodder will be sufficient for them while not at work.

Colts.—Young colts and yearlings require good nutritious food. Oats are the best food for a growing colt; if corn is used, wheat-bran is a proper accompaniment. Abundance of phosphates is needed to form a solid and strong bony framework, and bran is rich in these. Keep the skin clean with the curry-comb and brush, especially the latter.

Sheep and Lambs.—The ewes will now be in lamb, or should be, excepting where late lambs are desired. Where wool and mutton are the chief objects, May lambs will be preferable to earlier ones. There is no better place or time for lambs to be dropped than in a pasture on a fine sunny May day. Where lambs for market are wanted, the ewes will now be in breeding, and will need some extra care. An abundance of good, nutritious food, and water, are the principal requisites. Sheep may be the last animals to be brought into winter quarters.

Sheds and Yards should be prepared without delay. The use of iron for building sheds, described elsewhere, is worthy of consideration. This material has the advantage of being put together cheaply and rapidly, and a portion of a yard covered with it, might in many cases be a good investment. Litter for sheds should be kept dry, and plenty of it gathered. Leaves from the woods are not surpassed for the sheep-yards and pig-pens.

Pigs.—Pork can hardly fail to join in the general upward movement. While pigs of pure breed can be obtained cheaply, the opportunity for improving the stock should not be neglected. It is probable that a better time than the present will not soon occur again. Pigs, as manure-makers, are not so much considered as their importance deserves.

Poultry.—A well arranged poultry house, plain, without "gimcrack" and useless fixtures, and made so as to be kept clean easily, will pay as well as any other farm expenditure, if not better. With eggs at 2 cents each, 12 good hens will now return more than $3 in a month, and next month more than that. The profit of keeping winter layers is obvious. In all farm work our aim should be to produce that which sells best, and at a time when it sells for the highest price. At odd times, a stock of coops may be made for use in the spring.

Sundry Matters.—A general clearing up is now in order. Fields, fences, yards, buildings, and cellars, should be cleared of rubbish, and the rubbish burned. Gather up every tool and put it into its place; fix up wagons and carts, clean and paint them; arrange the house for winter and rough weather; now that lights have to be carried about the barns and stables, everything should be fully insured, and a good responsible company selected to insure in; fire-wood should be prepared and put under shelter, and that general family peace-maker, dry fuel, generously supplied and conveniently placed for use; where coal is used, a bin under cover, with an opening at the bottom for taking out the fuel easily, will save trouble and loss. Finally, prepare a suitable place for disposing of all household waste where it can be made available as a fertilizer and all risk of infection from it be avoided.

Orchard and Garden Work.

Whatever the season may have been, this month brings work to a close over a wide extent of country. The orchardist or gardener finds himself at the closing of one year, and already at the beginning of another, and while he is occupied with the sale, or the proper storing, of his crops, he must, in order to be successful, also plan, and in some things prepare, for the crops of the coming year.

Orchard and Nursery.

Apples.—With the present short crop, fruit that in years of abundance would not be thought marketable will sell, and should be sorted with this in view, and put up in the best possible shape. The rejected fruit can go into cider, which is better when made at this season, because the process of fermentation goes on more slowly.

Fences and Gates of the orchard and nursery should be in good order, especially at this season, when a stray animal may do serious damage.

Rabbits can do much harm if left to themselves. If the trees are few, they may be protected by bands of lath or tarred paper, tied on with fine wire. Rabbits have a great distaste for meat, and may be kept away from the trees by smearing the trunks of the trees with blood, or rubbing them with liver or other refuse meat. A small "bounty" on rabbits will make boys active with their traps. The rabbit is at its best in November, and a fat young one is most excellent.

A Mound of Earth at the base of young trees will serve the double purpose of a support to the tree against the winds and storms, and also prevent mice from gnawing the trunks and killing the trees. The mounds should be 18 or 20 inches high, and of earth free from weeds, so that it may pack firmly.

Draining, if necessary, should be done before hard freezing weather. Surface water should not be allowed to collect; a few furrows in the right place will be useful in carrying off the water.

Cions may be cut as soon as the leaves fall, when they should be put into sawdust, or, in its absence, sand, and kept in a cool cellar. Only healthy, thrifty trees of well-known varieties should be selected from. It is better to buy than to use poor stock.

Stocks for Root Grafting.—The grafting is done during the winter, and therefore the stocks should be in a handy place. The stocks are taken up before the ground freezes, assorted, tied in bundles, and put in boxes, with their roots well covered with soil, and placed in the cellar, ready for grafting.

The Keeping of Fruit requires a uniform, low temperature, just above the freezing point. Fruit, in ripening, gives off carbonic acid gas, which is deleterious, hence fruit should not be stored in the house cellar, if it can be avoided. Where there is no other place for the fruit, then the ventilation of the cellar must be carefully looked to, and if an opening can be made from the cellar into the chimney, let it be done. Open the windows of the cellar when the outside temperature will allow.

Detached Cellars should be provided where there is much fruit. In such, ventilation is not required, as the gas, by excluding the air, retards the ripening, and, in fact, tends to preserve the fruit.

Labels.—Those upon the trees should be looked to. The old style, made of pine, marked with a lead-pencil while a coat of white-lead is still fresh upon them, is about the best. Some prefer zinc strips with the name written with pencil. Perhaps the best, most durable tree label, was described and figured in the September number.

Seeds of Trees for spring planting are best preserved by mixing them with sand, and placing the boxes in a cool and dry place, where there are no mice.

Manuring.—If the results of annual cropping without any return to the soil could be seen in an orchard as quickly as in a corn or potato field, there would be fewer melancholy illustrations of the fact in unproductive orchards. What manure shall be given will depend upon circumstances, and the subject is too large to discuss here. Stable manure, bone, ashes, green crops—turned under, not taken off, as is too frequently done—and lime, are all of great value, and should be freely used.

The Fruit Garden.

To those really fond of gardening, the propagation of plants is one of its greatest pleasures. Aside from the economy of raising their own plants, and the certainty of having these true to name, there is a vastly greater satisfaction in cultivating plants they have started from the beginning—almost created—than with plants purchased already grown. The ease with which many things may be multiplied will surprise those who have never attempted it. In propagating, it is of great importance to do it at the right time, and in some cases the operation must be begun months before it is finished. For the fruit garden, the propagation of the Currant, Gooseberry, Blackberry, Raspberry, and the Grape, is best begun in the fall. The very simplest is

The Propagation of the Currant and Gooseberry.—The material used is the pieces removed from the bushes at the time of pruning. We have advised pruning so soon as the leaves fall, which is usually a month or more earlier, though many put it off until now, or much later. In pruning the Currant, the aim should be to have an open bush; remove altogether, from the base, those stems that make it too crowded, whether young or old, and the present year's growth of stem should be shortened by cutting off one-third or one-half. From the prunings,

Currant Cuttings are made, using only the growth of this year (told by its much lighter color), and cutting it into six-inch lengths. In localities where the ground is not likely to freeze hard for some weeks, the cuttings may be planted at once, otherwise they may be set quite close together in boxes of soil; the soil should be deep enough to allow them to be pushed in for two-thirds their length. Place the boxes in the cellar, see that they do not get very dry during the winter, and set out the first thing in spring. To plant now, open a trench with the spade, having one side of it perpendicular, and deep enough to hold the cuttings, leaving an inch above the surface. Place the cuttings 4 inches apart, and carefully fill in the earth. Success largely depends upon having the soil well against the lower ends of the cuttings, and it should be firmly pressed down here, using the end of a board to gently, but firmly, pound it down. Cover the bed with straw or hay, and leave it until spring.

Blackberry and Raspberry.—Both are supposed to have had the old stems cut away as soon as the crop was off. If this was not done then, do it now, and tie up the canes for the winter. Those who cultivate the tender raspberries must cover them this month. The canes are bent down in the direction of the row by one man, while another throws enough earth upon them to hold them in place; in a garden, the work may be done with the spade or shovel, covering the entire length of stem with a few inches of earth. In large plantations, the covering is done with a plow, and very rapidly.

Propagating the Blackberry and Raspberry.—In small gardens, the demand for plants is usually supplied by suckers, which come up from the old stools, and are allowed to grow for the purpose. Where a larger quantity are needed, they may be readily raised from root-cuttings. Roots are taken from old plants, by cutting down at a short distance from them with a sharp spade—they can lose a portion of their roots without injury—and taking up the severed roots. Cut up these into pieces two and three inches long, the smaller the roots, the longer the pieces, and place them in boxes of earth. Put in a layer of an inch of earth, cover this with cuttings, then another layer of earth, and so on. Place the box in the cellar, looking to it occasionally to see that it does not get too dry. If watering is necessary, do not make mud of the soil, the object being to keep it at the natural moisture. On the large scale, the box of roots and earth is buried in a place where no water will stand, and provision made for drainage. In either case, when the box is opened in the spring, the cuttings will be found to have callused, and with buds, and more or less roots will have formed. The cuttings are then to be set out in the open ground.

Grape-Vines.—Pruning should be done as soon as the leaves fall. Vines set this spring should bear one or two shoots next year, according to their vigor. Cut such vines back to three buds or so, leaving one or two extra ones to provide against accident. Old vines should be pruned according to the condition of each vine. Enough buds should be left to produce a sufficient number of shoots to bear the leaves and fruit, and no more, as it is to be remembered that those buds left after pruning represent the new growth for the next year.

Propagation of the Grape.—The cuttings are made from the branches pruned off, and should have two buds at least; tie them in bundles, label, and cover with earth in the cellar. The Concords and many others grow readily from such cuttings planted in the open ground in spring; others of harder wood, like Delaware, etc., do not grow readily, and are raised from cuttings of a single eye, in propagating houses; while others still, like Norton's Virginia, are with great difficulty propagated from cuttings at all, and must be layered. The Delaware, and others like it, may be propagated in the open air

by tying the cuttings in bundles, and puddling them in thin mud for half their lower length. These are to be set in a cold-frame, *upside down*, fine earth sprinkled in among the bundles, and earth over the cuttings to the depth of four inches. When it begins to freeze, the frame is filled up with straw or leaves, and covered with boards. In spring, the boards are taken off, the mulch removed, glass put on, and the heat of the sun will soon cause roots to start, when the cuttings must be set out.

Strawberry Beds should have their covering put on as soon as the ground begins to freeze. Use straw, salt-hay, marsh-hay, or leaves, placing it thickly between the plants, but put it on lightly directly over them, as too much smothers.

Kitchen and Market Garden.

Do now whatever the weather will permit to aid in the hurry of spring. So soon as the ground is cleared of a crop, remove the rubbish, manure and plow. It is best to not harrow after plowing at this season, but leave it rough, as the exposure of the ridged surface to the weather makes the soil of a better texture, especially if at all clayey and heavy.

Asparagus.—Cover the bed with a coat of coarse manure. If not already done, burn the tops, as asparagus *as a weed* is a nuisance to be avoided.

Cold Frames are not for growing the plants, but for protecting them in a dormant state through the winter. The sashes should not be put on until freezing weather sets in, which, in the latitude of New York, is generally not until the last of the month. Where the temperature is above freezing, and the sashes are on, they should be tilted up, that there may be a circulation of air among the plants.

Cellars in which roots are stored should be kept cool, or the roots will shrivel and lose their freshness. Roots keep fresher in pits, or when covered with earth in the cellar. The supply for present use may be kept in barrels or boxes of sand in the house cellar, and replenished from the pits as needed. See last month's Notes for making pits.

Cabbages.—Leave out until heavy frosts, and the ground is about to freeze; then pull and place heads down in rows, and cover the heads with a few inches of earth. Where there are many, a plow may be used in covering them. Two furrows turned upon the heads will do the bulk of the work, and the spade and hoe will finish the covering. A common method in family gardens is to dig a trench, where water will not stand, a little deeper than the hight of the cabbages. Set the cabbages in the trench close together, with what earth adheres to the roots. As the weather gets cold, put on a little straw, and when winter fairly sets in, complete the covering to several inches of straw, and put boards over the whole. Soft heads thus stored will become hard and excellent by spring.

Celery should be stored before the ground freezes hard; dig a trench in a dry place, a foot or so wide, and deep enough to bring the tops on a level with the soil. Set in plants closely, side by side, with no earth between. After the trench is filled, cover at first only with a small amount of straw, and add to the covering as the cold increases, until it is about a foot thick. To prevent rain from entering, boards may be put over the straw lengthwise of the trench.

Parsnips.—A portion for present use may be dug and stored in sand in the cellar, the rest can remain in the ground, as freezing not only does not injure, but improves them. Others may be dug in January.

Parsley may be grown for winter use by boring numerous holes in the side of a keg; a crown of parsley is put at each hole, the roots extending inside the keg, which is gradually filled with soil. The tops grow out of the holes. The keg may be placed in a sunny window, and when properly watered, makes an ornament as well as furnishes a good crop of parsley when green things are scarce.

Carrots and Beets.—Dig before they have been frozen, and store as directed for other roots.

Turnips, being less injured by frosts than beets and carrots, may be left until the last, when they must be dug and pitted, or put in the cellar.

Flower Garden and Lawn.

The lawn should go into winter quarters with a long coat of grass; hence late mowing is not advisable. Only the most finely composted manure should be applied to the lawn. So great is the danger of weed seeds in the manure that we prefer to rely upon ashes, guano, nitrate of soda, and similar fertilizers, as the sources of the plant food.

Bulbs that are to be housed for the winter should be taken up before the ground freezes. The earlier hardy ones, as the Hyacinths, Tulips, and the other Dutch bulbs are planted the better.

Leaves.—The lawn and paths should be raked after the leaves have fallen, and the refuse used as a litter or protection for tender plants; it improves the grounds, and furnishes a valuable covering.

Evergreens.—At this time of the year when the flowers and deciduous leaves are gone, the evergreens show to the best advantage. A diversity of form and variety in shades of green is very pleasing, and the shrubs, when planting, should be arranged with reference to winter effect.

Winter Protection.—The large bundles of straw bound tightly about half hardy shrubs are not so common now as formerly, as they are not necessary. A few evergreen boughs sufficient to break the sharp winds and to afford shade, are found to answer the purpose, and at the same time avoid the danger of smothering the plants protected.

New Beds and Paths may be laid out, and much like work done after the care of the plants is ended.

Weeds.—Any large weeds found in the lawn should be removed, which can be best done by the aid of an old chisel furnished with a long handle.

Greenhouse and Window Plants.

Bulbs may be grown in sand, moss, or in water; but rich soil in pots is the best medium. The bulbs should be put in the pots at once, and placed in a dark, cool room or cellar for several weeks to form good strong roots. Water if needed.

Plants from the Garden should have a period of rest, with very little water; those to be forced, as perennial Candy-tuft, Deutzia, Dicentra, and others, may remain in a cool cellar until mid-winter.

Watering.—This is an important part of successful plant culture. The pots should be provided with proper drainage by putting in a plenty of broken pieces of pots or oyster-shells. A good thorough wetting when water is needed is better than keeping the surface moist by frequently pouring on a little water. With good drainage, there is but little risk from over-watering. In watering in rooms, use water of the temperature of the air.

Hanging Baskets should be hung where they can have an abundance of light and sunshine, and not near the stove or over a register. They should be turned around every day or so, if the light comes mostly from one side, or the plants grow to one side.

Climbers add very much to the beauty of a greenhouse or window. English Ivy, Tropæolum, German or Parlor Ivy, etc., are useful for this purpose.

Annuals.—Sweet Alyssum and Mignonette should be sown in succession to give a supply for cutting.

Insects.—If found on the plants in the house, they should be destroyed at once by means of tobacco water or soap-suds. An old tooth-brush may be used on hard-wooded plants. Crush the Mealy Bug by the use of a small pointed stick of soft wood, or give it a drop of alcohol from a small brush.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending Oct. 13th*, 1879, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats*
28 d's *this* m'th..	561,000	9,104,000	7,043,000	582,000	497,000	1,146,000
27 d's *last* m'th..	426,500	6,268,000	4,209,000	489,000	206,000	1,287,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 d's *this* m'th	607,000	21,156,000	10,265,000*	851,000	152,000	2,087,000
27 d's *last* m'th	485,000	19,130,000*	7,234,000*	601,000	14,000	1,835,000

* Including sales for forward delivery.

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 days 1879..	561,000	9,104,000	7,043,000	582,000	497,000	1,146,000
26 days 1878..	462,000	7,782,000	5,413,000	605,000	508,000	2,311,000

SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 days 1879..	607,000	21,156,000	10,265,000	851,000	152,000	2,087,000
27 days 1878..	507,000	11,154,000	7,845,000	617,000	312,000	2,214,000

3. *Exports from New York, Jan. 1, to Oct. 10.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
'79	2,821,000	51,473,000	28,815,000	3,504,000	131,000	501,000	281,000
'78	1,392,300	41,971,000	22,847,400	3,421,250	1,516,2 0	2,980,300	313,200
'77	1,105,200	10,662,600	19,982,250	1,632,300	803,250	157,000	190,200
'76	1,517,090	20,121,369	14,245,477	816,474	39,392	460,481	470,830
'75	1,412,211	20,631,499	10,760,680	154,310	225	104,823	240,932

4. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
Oct. 14, '79..	2,512,133	2,520,780	96,733	41,079	598,063	212,672
Oct. 7, '78..	1,763,508	1,485,046	199,918	200,275	1,216,564	125,764

CURRENT WHOLESALE PRICES.

	Sept. 15.	Oct. 14.
FLOUR—Super to Extra State	$4 00 @ 5 00	$5 10 @ 6 25
" Super to Extra South'n.	4 00 @ 6 75	5 10 @ 7 75
" Extra Genesee	5 00 @ 6 25	5 75 @ 7 00
" Superfine Western	4 00 @ 4 50	5 10 @ 5 60
" Extra Western	4 50 @ 8 50	5 50 @ 9 00
" " Minnesota	4 50 @ 8 00	5 50 @ 9 00
RYE FLOUR, Superfine	3 25 @ 4 00	3 75 @ 4 50
CORN-MEAL	2 15 @ 2 75	2 45 @ 3 25
OAT MEAL, ₱ bbl	3 50 @ 6 25	4 00 @ 6 50
WHEAT—All kinds of White	1 00 @ 1 17	1 35 @ 1 43
" Red and Amber	98 @ 1 16	1 20 @ 1 40
" Spring	80 @ 1 10	1 15 @ 1 37
CORN—Yellow	49 @ 59	58 @ 61
" White	49 @ 58	58 @ 65
" Mixed	48 @ 49	55 @ 57½
OATS	32 @ 40	37 @ 45
RYE	66 @ 70	85 @ 88
BARLEY	80 @ 1 15	90 @ 1 00
HAY—Bale, ₱ 100 lbs	45 @ 85	45 @ 85
STRAW, ₱ 100 lbs	35 @ 65	30 @ 65
COTTON—Middlings, ₱ lb	12½@ 12¾	10½@ 10¾
HOPS—Crop of 1879, ₱ lb	28 @ 36	28 @ 37
" " 1878, ₱ lb	7 @ 18	7 @ 18
" " olds, ₱ lb	3 @ 10	4 @ 10
FEATHERS—Live Geese, ₱ lb	35 @ 47½	35 @ 47½
SEED—Clover, West. & St. ₱ lb	6¾@ 8	5¾@ 8¾
" Timothy, ₱ bushel	2 50 @ —	2 15 @ 2 25
" Flax, ₱ bushel	1 35 @ 1 40	1 35 @ 1 37½
TOBACCO, Kentucky, &c., ₱ lb	2½@ 12	2½@ 12
" Seed Leaf, ₱ lb	5 @ 40	5 @ 40
WOOL—Domestic Fleece, ₱ lb	20 @ 43	22 @ 45
" Domestic, pulled, ₱ lb	18 @ 38	22 @ 45
" California	15 @ 30	15 @ 33
TALLOW, ₱ lb	5¾@ 5¾	5¾@ 5¾
OIL-CAKE—₱ ton	27 00 @27 50	28 50 @28 75
PORK—Mess, ₱ barrel	9 00 @ 9 20	9 95 @10 25
Extra Prime, ₱ barrel	8 25 @ 8 50	8 50 @ 9 00
BEEF—Extra mess	11 50 @12 00	11 25 @12 00
LARD, in tcs. & bbls, ₱ 100 lb	6 07½@ 6 85	6 05 @ 6 85
BUTTER—State, ₱ lb	6 @ 21	12 @ 27
" Western, poor to ₱y, lb	6 @ 19	10 @ 27
CHEESE	3 @ 7¾	5 @ 12
EGGS—Fresh, ₱ dozen	12 @ 17	17 @ 19
POULTRY—Fowls, ₱ lb	9 @ 15	10 @ 13
" Chickens, ₱ lb	9 @ 17	10 @ 14
" Roosters, ₱ lb	5 @ 7	5 @ 7
Turkeys—₱ lb	11 @ 15	10 @ 15
Geese, ₱ pair	1 00 @ 2 00	1 00 @ 1 50
Ducks, ₱ pair	40 @ 60	40 @ 50
" ₱ lb	10 @ 12½	10 @ 16
Capons, ₱ lb	18 @ 25	18 @ 25
WOODCOCK, ₱ pair	75 @ 70	50 @ 60
PARTRIDGE, ₱ pair	90 @ 1 25	50 @ 1 00
SNIPE, per doz	60 @ 2 00	50 @ 1 50
PIGEONS, ₱ doz	75 @ 1 75	1 25 @ 2 37½
GROUSE, ₱ pair	87½@ 1 00	75 @ 1 00
APPLES, ₱ barrel	75 @ 2 25	75 @ 1 75
PEARS, ₱ bbl	1 00 @ 4 00	1 50 @ 5 50
" ₱ crate	— @ —	— @ —
QUINCES, @ bbl	— @ —	2 00 @ 3 00
GRAPES, ₱ lb	3 @ 9	3 @ 8
" ₱ case	3 00 @ 3 50	3 00 @ 3 50
CRAB APPLES, per bbl	— @ —	2 50 @ 3 00
PLUMS, ₱ bbl	3 00 @ 8 00	5 00 @10 00
POTATOES, ₱ bbl	1 00 @ 1 25	1 00 @ 1 25
" Sweet, ₱ bbl	1 50 @ 2 75	1 00 @ 2 00
TURNIPS ₱ bbl	75 @ 1 00	75 @ 1 00
TOMATOES, ₱ box	15 @ 25	25 @ 40
BEANS—₱ bushel	1 20 @ 2 00	1 30 @ 1 75
PEAS—Canada, in bond, ₱ bu	70 @ —	70 @ —
" new, green, ₱ bag	1 25 @ 2 00	1 25 @ 1 75
CORN, GREEN ₱ 100	25 @ 1 00	35 @ 1 00
LIMA BEANS, ₱ bag	1 00 @ 1 50	1 00 @ 1 75
STRING BEANS, ₱ bag	50 @ 1 00	60 @ 1 00
BROOM-CORN	2¾@ 6¾	2¾@ 6¾
CARROTS, ₱ 100 bunches	75 @ 1 50	1 00 @ —
BEETS, new, ₱ 100 bunches	1 00 @ 1 75	75 @ 1 25
CABBAGES—₱ 100	1 50 @ 4 50	1 75 @ 4 00
CAULIFLOWER, ₱ doz	1 00 @ 5 00	50 @ 3 00
ONIONS—₱ bbl	1 25 @ 2 50	1 50 @ 2 50
CRANBERRIES, per bbl	— @ —	4 50 @ 6 50
SQUASH, ₱ bbl	60 @ 75	50 @ 75
" striped, per doz	1 00 @ 1 50	— @ —
CUCUMBERS, ₱ 100	30 @ 1 12	— @ —
WATERMELONS, ₱ 100	3 00 @15 00	— @ —
PUMPKINS, ₱ 100	— @ —	2 00 @ 5 00
GREEN PEPPERS, ₱ bbl	— @ —	1 25 @ 2 00
MUSKMELONS, ₱ bbl	20 @ 1 25	— @ —
EGG PLANTS, ₱ 100	50 @ 1 25	5 00 @ 8 00
OKRA, ₱ 100	10 @ 15	12 @ 15

Extraordinary activity in Stocks, Produce, and Merchandise, and resulting in very decided buoyancy in prices have been the features of business, of most interest during the past month. At the Stock Exchange, the transactions have been rapidly increasing in volume, until the unprecedented aggregate of 3,262,000 shares was reached for the week just closed, and prices have been worked up materially all through the list of properties, recognized in the calls at the Board, leaving off more or less unsettled, through local manipulations of values, with a view of depression....In the Produce and Merchandise lines, the dealings have been on a very extensive scale, and have resulted in another notable rise in values, the markets generally closing quite firmly, with little show of urgency on the part of holders to place supplies at even current figures,—the general anticipation being of an additional improvement, and, in most connections, a continuously strong range of quotations. The business in Produce and Merchandise has been mainly of a legitimate character, for home consumption, or for export, though speculation has been also quite brisk in a few leading commodities. In Breadstuffs, the transactions have been very large for shipment, home use, and on speculative account, the export movement having been stimulated by the reports of great defic-

iencies in the produce of the crops of Western Europe, and the activity and buoyancy of the foreign markets, which have likewise contributed to quicken and strengthen the speculative interest here. Wheat has been advancing rapidly in the home and foreign markets, reaching the highest point as we write, and showing decided firmness, on unusually heavy trading for prompt and forward delivery. Corn has also improved sharply, winding up strong, on a liberal business, as well for early, as for forward delivery. Rye has been ruling much higher, and meeting with a very ready sale, chiefly to export buyers. Oats have been in more urgent demand and much dearer. Barley has been attracting more attention, and has been quoted towards the close steadier. Flour has followed Wheat in the upward movement, and has shown an important rise for the month.... Provisions have been ruling higher, though variable,—hog products meeting with most demand, chiefly from home trade sources. Butter and Cheese have been quoted up several cents per pound, the former reacting considerably, and the latter also weakening a little towards the close....Wool has been in brisk request, at higher and buoyant prices, the market closing in favor of holders, who are very confident, in view of the reduced and comparatively light supplies now available in the leading markets....Tobacco has been moderately active within the previous range....Cotton declined seriously under free and urgent offerings, and unfavorable advices from England....An extraordinarily active business has occurred in Hops, chiefly for shipment to England, where the home crop failed, to a very serious extent. Prices have been steadily on the advance. The home consumption is also reviving....Metals of all kinds have been rising rapidly in price, on very free dealings. ...Hides, and Leather, also, much dearer, and unusually active....As resulting from the wonderful revival in domestic industries, and commercial interests, the inquiry for Dry Goods, Boots and Shoes, Groceries, etc., in the home markets, has been of remarkable magnitude and urgency at hardening prices....Altogether the month has been one of the most successful, satisfactory, and encouraging, in the business way, which we have ever had occasion to review.

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Sept. 15	12,651	187	5,561	37,130	33,661
Sept. 22	12,678	202	3,451	37,073	32,391
Sept. 29	12,716	191	4,227	32,151	33,969
Oct. 6	9,843	326	3,597	25,753	31,546
Total for 4 *Weeks*	47,888	906	15,836	132,107	131,567
do. *for prev* 4 *Weeks*	59,358	865	17,389	141,529	97,652

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	11,972	226	4,209	33,027	32,892
do. do. *last Month*	14,839	216	4,317	33,382	24,413
do. do. *prev's Month*	12,822	178	4,411	32,947	19,351

The prices for the past four weeks were as follows:

WEEK ENDING	*Range.*	*Larger Sales.*	*Aver.*
Sept. 15	8¼@10¼c.	8¼@ 9¼c.	9 c.
Sept. 22	8¼@10¼c.	8¼@ 9¼c.	9 c.
Sept. 29	6¼@10¼c.	8¼@ 9¼c.	9 c.
Oct. 6	6 @10¼c.	8¼@ 9¼c.	8¼c.

Beeves.—After a somewhat uneventful market during the fore part of the month, the closing week was marked by a surprising and disastrous falling off in the demand, and a corresponding decrease in prices. Without any life or activity in the market, holders found it difficult to sell any of their stock, and impossible to sell all. Wholesale dealers and shippers lost heavily, and at no previous week this year was there so much depression, or so little desire to buy. The closing prices were 6¼@7¼c. ℔ lb. for Texans, to dress 55 lbs.; 7½@8c. ℔ lb. for Coloradoes of the same quality; poor native steers, 7¼@8¼c., to dress 56 lbs.; good to prime steers at 8¾@9¾c., to dress 56 lbs., and extra at 10@10¼c., to dress 56@58c. per 100....**Cows.**—Common cows are without improvement, the lowest price known in this market, viz., $19, was paid this month for a milking cow. Good milkers have been in better demand, and have sold freely at $45 per head. Extra cows have brought $55 per head....**Calves.**—An active market has existed for good veals, at 6¼c. ℔ lb., live weight. Grass calves have been almost unsaleable at 1¾c. ℔ lb.; fed calves have sold at 2¼@3¼c., and poor to fair veals at 4@6c. Extra sold for 6¼c. ℔ lb....**Sheep and Lambs.**—There has been a good demand for nearly all kinds of sheep, especially for heavy sheep fit for export; for such stock 4¾@5¼c. ℔ lb. has been paid, and prices were firm a the close at the same rates. Common sheep have been steady, and closed at 3½@4c. ℔ lb. Lambs were higher at the close of our report, advancing ¼c. ℔ lb. at a range of 4½@5¼c. ℔ lb., all live weights....**Swine.**—Live hogs have weakened considerably, and without sales, are quoted at 3¾@4¼c. ℔ lb.; light pigs are quoted at 4¼c. There has been no change in dressed hogs, city dressed are in fair demand at 5¼@5¾c. ℔ lb.

Prices of Feed.

Bran, per ton	$16.00@$18.00
Middlings, per ton	19.00@ 20.00
Ground Feed, per ton	21.00@ 23.00
Linseed-oil-cake, per ton	35.00@ 40.00
Cotton-seed-meal, per ton	26.00@ —
Chandler's Scraps, per lb	2@ 3

Prices of Fertilizers.

Nitrate of Potash (95 per cent.), per lb	9 @9¼c.
Sulphate of Potash (potash 44 per cent) per lb	3 @3¼c.
do. do. (potash 27½ per cent) per lb	1¾@1¾c.
German Potash Salts (potash 12 to 15 p. c. p. ton	$15.00@18.00
Muriate of Potash (potash 50 per cent), per lb	2 @2¼c.
Nitrate of Soda, per lb	4c.@4¼c.
Sulphate of Ammonia (25 per cent.), per lb	4c.@4¼c.
Dried Blood (ammonia 13 per cent) per ton	$40.00@45.00
No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ℔ ton	$56.50
do. do. Lobos, do. do. do	47.50
do. do. guaranteed, ℔ ton, cargo K	56.00
do. do. rectified, per ton, 9.00 p. c.	65.00
do. do. do. do. 3.40 p. c.	51.00
Soluble Pacific Guano, ℔ ton	45.00
Excelsior Fertilizer Works, Fine Ground Raw Bone	55.00
Mapes' Complete Manure (clay soils) per 1,000 lbs	25.00
do. do. do. (light soils) per 1,000 lbs	25.00
do. do. do. "A" Brand, (wheat) ℔ 1,000 lbs	20.00
do. Bone, strictly pure, meal per ton	42.00
do. do. do. medium do.	36.00
do. do. do. dissolved do.	42.00
do. Fruit and Vine Manure do.	35.00
Stockbridge Rye Manure, per ton	45.00
" Wheat do do	45.00
" Seeding Down Manure, per ton	40.00
" Turnip Manure, per ton	50.00
Bowker's Wheat Phosphate, per ton	40.00
Baugh's Raw Bone Phosphate, per ton	33.00
Baugh's Manure for Tobacco and Grain, per ton	45.00
Walton, Wham & Co.'s Raw Bone Phosphate	40.00
Gypsum, Nova Scotia, ground, per ton	8.00

HOW TO GET
$21.50—for—$1.50

The above may appear sensational. But see if it is not, in effect, what may readily be done, thus: If twenty persons in any neighborhood unite and contribute $1.50 each, the Publishers offer not only to send the *American Agriculturist* to *each* of the club from now to the end of 1880, but they offer, *in addition*, to present to such club **$20.00 worth** of any of the **847** really Valuable Books described last month, pages 412 to 415. Now, let some one of the club be named as Keeper or Librarian, and let these $20.00 worth of books circulate around among and be read by *all* the members of the club, and be afterwards kept where *all* will have permanent access to them for reference or re-reading.

In this way *each* contributor of only $1.50 will have this Journal to the amount of $1.50, and in addition the *full use* of the $20 worth of books, and a permanent ownership in them, in common with others. *Practically he gets the permanent use of* $21.50 *for his* $1.50.

It only needs some enterprising person, or two, or three of them, to carry this into practice in *every* neighborhood. Those who do it will be public benefactors.

Note *First*, that there is a wide range of choice Books, from the best Publishers, to select from. The Books may be Agricultural, Horticultural, or any other. See the List on pages 412 to 415 in the Supplement to the October number.

Note *Second*, that 30, 40, or even 100 persons may join in such an enterprise; the larger the number, the greater the amount *each* will secure. (If 100 persons join, there will be $100.00 worth of Books for each to draw upon; and the same for any greater number or smaller number down to $10. See page 412, first column.

A Magnificent FAMILY BIBLE,
A Valuable COMPOUND MICROSCOPE,
A Very Choice Selection of GOOD BOOKS,
A Most Excellent, Reliable WATCH,
A Very Good Suit of CLOTHES,
A Desirable German Student's LAMP,
A Variety of Best Silver-Plated WARE,
A Dairyman's PERFECT MILK PAIL,
A Great Many Things for CHILDREN,
and
A Hundred Other GOOD THINGS,

are easily obtainable, without cash outlay, by almost any one—man, woman, or child even. For particulars, see **Premium List** *in Supplement of the October American Agriculturist. Any one not receiving it, or desiring a copy, will be supplied on application.*

That Long Year.

All **New** *Subscribers for* 1880, *whose subscriptions come to hand prior to November 5th, will receive the* ***American Agriculturist*** *for November and December of this year without extra charge.*

Those received on and after November 5th, and prior to December 1st, will receive the paper for December of this year without extra charge.

The above applies to **All** *new subscribers, from whatever source received—including Premium Clubs.*

Those too distant to receive this number before November 5th, will be allowed 10 *days after its reception in due course of mail, to take advantage of the above in presenting the paper to their friends.*

The Remarkable List of Premiums,

described in the large "Supplement" of our last issue has attracted wide attention, not only among our readers, but from the press of the country.

The Supplement should be preserved for reference by all who received it, as a descriptive list of good Articles and choice Books, new and old, many of them new, and all useful.

We suggest that it be looked over again carefully. Note especially the first 22 articles, also those numbered 28, 31, 35, 51, 53, **54**, 60–3, 77, 79, 80, 81, 92 to 115, 125 to 132, 159, 160, 176 to 184, **185**, 209, 212, 218, 219, 220, 248 to 258, 269, 274, 341–3, and 349–51. There is hardly a family in the whole country that does not desire and *need* one or more of these articles as a premium, or by purchase.

There is not a town or neighborhood in all the country where one or more persons of a little enterprise, may not secure one, two, or three of these excellent premium articles without money outlay, and at the same time confer a real benefit upon every person they shall gather into a premium list of subscribers, and readers. It only needs the will—the determination—to do it, and it will be accomplished.

THIS MONTH is a good time for the work. All new names for 1880 are entered at once to receive the paper the balance of this year without extra charge. This applies to all new subscribers, including premium lists.

☞ **N. B.**—Premium lists containing two or more names, may be made up of both *new* subscribers, and *old* ones renewing for another year.

Reasons for Thanksgiving

Omitting the many moral reasons that prompt a hearty giving of Thanks, let us glance at a few of the material ones. First of all may be named the splendid weather which has prevailed all over the country. Up to this writing, October 15, the tenderest out-door plants have been scarcely nipped in this latitude, and killing frosts have occurred in only very limited localities. Every day's freedom from such frosts during the first part of September was worth at least a million dollars to the corn crop. The continued genial weather for the latter part of September and first half of October, not only matured all the summer crops, and extended the good pasture season, but it has also greatly facilitated the putting in of a large area of winter grain, and the finishing up of the summer and autumn work upon the farm. Taking the country together, the weather has been just what the united wishes and wisdom of the great agricultural class *would have asked for!*

The terrible war we passed through, which led to the financial depression and disasters of the five years past and the load of debt, was greatly prolonged if not doubled and more, by the active sympathy of Great Britain and, in a measure, of other western nations of Europe—where some classes would have rejoiced at the downfall of republican institutions in the New World. Does it not seem as if Providence had interposed in our behalf, when we recall the fact that for three years past our country has been blessed with wonderful crops, while the failure of them abroad has opened a market for our immense surplus? And this year, when we needed just such help to aid in the trying ordeal of returning to a sound currency, we have the climax of great crops and unprecedented foreign demand.

Last month we wrote of the great increase of exports, and the inflowing tide of Gold to pay for them. The current has scarcely lessened. From Jan. 1 to Oct. 10th the imports of specie amounted to **$44,294,979,** of which $41,538,895 have arrived since Aug. 1st. Of this amount, $12,826,806 came from Great Britain; $24,255,903 from the Continent of Europe; $4,406,186 from the West Indies and South America,—the whole sum being only a part of the balance to our credit, after deducting our imports, our payment of foreign indebtedness, and for Bonds returned home.—Look a moment at the following two lines from our market reports, in which we have reduced the flour to its equivalent of wheat. The first line shows the exports from New York City alone, from Jan. 1 to Oct. 10; and the second line the average exports from the same place during the three years 1875, 1876, and 1877, the last (1877) being the beginning of our greatly increased exports.

Exports from New York, January 1 to October 10.

	Bushels of Wheat.	*Corn.*	*Rye.*
1879	64,578,000	28,815,000	3,504,000
1875-7, Average	23,912,657	14,996,136	534,395
Difference	40,665,343	13,818,864	2,969,605
Increase about		*170 per cent.*	*92 per cent.* 556 *per cent.*

And now as to the prices—the returns received. In writing of our great Dairy interests last month, and expressing our sympathy with those who were suffering on account of the unremunerative returns, we offered the encouragement that the then state of things would not long continue. The improvement has come sooner, or at least much more rapidly, than we dared to predict, or even hope for. As compared with the August prices, Cheese has advanced over 100 per cent, thus doubling its selling value, and Butter has gone up 60 to 70 per cent. The following figures from our market reports, which give a wide range of *wholesale* prices for the various grades, will show the advance in some leading products:

	August 11.	*October 15.*
Flour, Superfine to Extra State	$3.30@$4.75	$5.10@$6.25
Flour, Superfine Western	3.30@ 4.15	5.10@ 5.60
Wheat, all kinds of White	1.00@ 1.15	1.29@ 1.52
Wheat, Spring	75@ 1.03	1.19@ 1.41
Rye	65@ 67	85@ 88
Corn, mixed	44@ 46	55@ 57
Wool, Domestic Fleece	18@ 40	22@ 46
Pork, Mess, per barrel	8.75@ 9.20	9.95@10.25
Lard, per 100 lbs	5.70@ 6.30	6.05@ 6.85
Butter, State, per lb	5@ 17	12@ 27
Butter, Western poor to fancy	5@ 17	10@ 27
Cheese	2@ 5½	5@ 12

Is not this last table alone a sufficient cause for thanksgiving on the part of the great class of producers? But every kind of business is active. Our space being limited, we close with the words of the gentleman who has for a quarter of a century been in our markets daily, and has made up our reports during all that time: "Altogether the past month has been one of the most successful, satisfactory, and encouraging in the business way, which we have ever had occasion to review."

containing a great variety of Items, inc'uding many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

The German Edition.—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German Edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

Can We Recommend Them?—Several have written to the Editor concerning the articles offered on the Premium List, asking if we can recommend this, or know that to be good, etc. To answer these and to anticipate similar inquiries, we would say, that we know that every article offered as a Premium was selected with the greatest care, and had a thorough examination by one or more of the firm; and we are sure that there is not a single article there that is not the best of its kind, and if one wishes such an article he need not fear its quality.

Messrs. Hooker's Grapes.—Many who were at the meeting of the American Pomological Society, at Rochester, in September last, visited the nurseries of Messrs. H. E. Hooker & Co., especially to see his grape-vines. It would be difficult to find a specimen vineyard in which the vines were so carefully trained, or which could show such an abundant crop of fruit. The vines were trained with horizontal arms and upright canes, and so successfully that there was rarely a blank. To prevent injury by birds, wasps, etc., Mr. Hooker ran a piece of mosquito netting or similar fabric along the trellis on both sides, and as in this method of training, the fruit is restricted to a narrow space, a large vineyard could be protected in this manner with little expense. We saw here the original vine of the Brighton grape, a marvel of fruitfulness. This variety, to our taste, ranks among the very best of our native grapes. There were several good judges present at the time, some of whom regarded the Brighton as preferable to the Delaware—an opinion in which we can concur.

Ashton's Salt--Premiums.—In addition to the regular premiums at the Dairy Fair to be held next month, Messrs. Francis D. Moulton & Co., agents in this country, for Ashton's Factory Filled Salt, offer $500 in premiums to be awarded in sums of $50, $75, and $100, for butter and cheese salted with Ashton's salt.

Tree Planting Laws of Iowa.—It can scarcely be said hereafter that farmers bear all the burdens of taxation, and have none of the emoluments derived from public expenditures. The exemptions from taxation claimed in Iowa under the Tree Planting Law the present year, as returned by the State Auditor, amount to $5,949,730, upon which the tax is estimated to be $178,492. This saving in payments of taxes and the possession of the fruit trees, together with the improvements of property resulting therefrom, amount in the whole to a respectable bonus. As the exemption amounts to $100 for each acre of orchard planted, it follows that there have been nearly 60,000 acres of fruit trees planted; but 18 counties in the State fail to make claims, and 3 counties claim over $200,000 each; a remarkable report.

"Worm" for a Name.—"M. G. S.," Volcano, W. Va. Your specimen is the well known "White Grub," the larva state, not of a moth, but of a beetle, the common May-Beetle, or June-bug, Dor-bug, etc., the brown beetle that, attracted by light, enters the house, and bounces about the ceiling and wall so noisily. The Grub and its work have been frequently described by us; It is a general feeder, eating not only geraniums and potatoes, as in your case, but everything from the roots of grass, to those of young trees. No remedy thus far known, but to *kill*, whenever met with; in the grub state when plowing, in the beetle state when it appears. When a plant wilts, look at the root and a Grub will usually be found.

Sundry Humbugs.

We do not often get out of patience, but we are driven almost to the extremity of good nature when, after all we have said about stock speculations, there still come letters, often several a day, asking either if some particular circular does not present an exception to our general remarks, or stating the whole case as if it were a perfect novelty, and asking our opinion of the scheme. Many letters ask as to the responsibility of the parties sending out the circulars, or publishing the attractive advertisements, etc. Now, let us say just once more our say on this subject, and we hope our readers will accept it as final, for we are really tired of going over the same ground again and again. We have answered scores of letters by mail, in order to avoid saying anything more in print, but yet they come, and keep coming. Please attend! Individuals and firms, by attractive circulars and advertisements, show how by small investments large sums may be made. They show this by an abundance of figures, and "figures"—it is proverbial—"won't lie." The usual proposition is to send the parties certain sums, which said parties will use in speculating in the Stock Market. There is a plausible attempt to show by figures how a certain sum must make a large profit if invested in "puts and calls," "special privileges," and all the rest of it. Most of our letters inquire as to the money responsibility of the advertisers, and ask if they will do as they agree. So far as our inquiries go, the advertisers appear to have abundant capital, and the question naturally arises, if so much money is to be made, why they do not make it themselves. Whether they will do as they agree, we can not say, but know nothing to the contrary, as, so far as we have observed, they do not "agree" to do much besides receive the money. Now, to answer all letters, for we are through with writing individual replies, we would say, that no business man in New York City would be known to be concerned in the speculations. His credit would be gone at once. No clerk, cashier, teller, book-keeper, or any other in bank, insurance company, mercantile firm, or whatever place of trust, would have it known that he was engaged in "Wall St. Speculations," as he is well aware that his place would be taken from him at once. This is the esteem in which such matters are held by the solid men of business. Now, if our readers think that they know better than the substantial merchants and bankers, with abundant opportunities to know all about Wall St. and its ways, let them act upon their knowledge. We have for years advised leaving such schemes to those who can afford to invest in them. If they will acquire their knowledge through personal experience, let them take the consequences. No doubt many readers think we devote too much space to this matter. Could they see the number of letters that come to us, and the earnestness of the writers, they would think we were right in attempting to save hundreds from venturing their hard earnings in such schemes....Although there has long been a law

PROHIBITING THE USE OF THE MAILS

by lottery dealers, it has been for the most part a dead letter, and though some were at first deterred, circulars, tickets, and the rest have been carried by the mails as freely as ever. Recently Postmasters have had "a ruling" from Headquarters at Washington, which, if generally observed, must practically break up the lottery business—until some method is devised to get around, or over, or under it. Perhaps this may make papers which

ADVERTISE LOTTERY SCHEMES,

in face of the fact of their illegal character, a little cautious, and the uncertainty of the business, if no higher motive, may induce them to exclude such notices from their columns.. .Among the many swindles that are intended especially for the "benefit" of farmers is

"THE VITATIVE COMPOUND,"

which came to us some time ago, with the most remarkable claims. It is sold by one Bingham, of Pennsylvania, and is claimed to be patented by one Waugaman. We shall presently show this name is not the only *gammon* that there is about it. It is sold in boxes, holding about two ounces, for $1, and cheap at that when we consider what it is claimed it will do. We are told that the stuff

"IS PURELY CHEMICAL IN ITS CHARACTER

and effects, containing, in a condensed form, those ingredients *so generally deficient in the soil* [we should hope they might be!] and yet so essential to the immediate

and certain germination of the seed, and the vigorous and rapid growth of the plant."—All sorts of claims, "more vigorous and rapid growth," etc, etc., are made, but the claim that struck us most reads: "It is applied directly to the seed, and not scattered broadcast, as many fertilizers are." It is said that Liebig once predicted the time when the manure for a whole field could be carried in the vest pocket, but here we don't manure the *field* at all. We go to headquarters, and

MANURE THE SEED.

just as the boy Franklin proposed that his father say Grace over the whole barrel of pork. Then, so very "vitative" is the stuff, that we learn that it will not only protect the seed, but "the shoot, against wire-worms, and grubs." So powerful the stuff that we wonder any box could hold it. We, with proper care, laid the box aside for further examination, and, impossible as it may seem, it was actually forgotten. But this compound was so "vitative" that it turned up in North Carolina, and our friend, Prof. A. R. LeDoux, the State Chemist, made it show its "purely chemical" "character" in the "twinkling of a gally-pot." This "Vitative Compound," according to Prof. LeDoux, contains

NOT ONE FERTILIZING INGREDIENT,

but is a miserable mixture of Sugar of Lead and White Vitriol!—Acetate of Lead and Sulphate of Zinc!—and the wonderful Wa-gammon, who is said to have patented it, didn't know enough about chemical compounds to be aware that these two salts would decompose one another, so that, practically, the seed would be wetted with a little Acetate of Zinc! The stuff cost about 4 cents, and sold for a dollar, which might be called a "living profit."

THE NORTH CAROLINA EXPERIMENT STATION

has done a very good thing in exposing this humbug, and we thank it for the analysis of the "Vitative Compound."....But the science of humbug, like other science, knows no country—it belongs to the world. The farmers over the border in Canada are not neglected. We have a handbill which sets forth

ANOTHER SPECIAL HUMBUG FOR FARMERS.

Geo. A. Kay—he has patented, and he will sell to farmers for $5 the inestimable right to make their own manure—not only that, but they can make it in "fifteen new and most economical ways known." For his money the farmer gets tables (not vege-tables, we fear,) by which he can "at once tell to a pound of each element which he has cropped from his soil, and will know to a pound what elements to add back," which is something wonderful. A correspondent writes that the whole affair consists in adding Lime and Potash to a compost heap. The funny thing about it is that the chap claims that

NO ONE CAN USE POTASH WITHOUT HIS PERMIT,

and our friend asks us if he would run any risk in using Potash without paying for the right to do so. Perhaps this Kay has control of wood-ashes also! We are quite sure there is no patent that can prevent the use of anything you please on your land. At most, this Kay only claims to have patented his "inscriptions," whatever they may be. ....We have a brand new humbug—not precisely a "new species," as a naturalist would say, but a "well-marked variety." We will call it

THE BOARDING-HOUSE DODGE,

a variety of the "Hotel Dodge," but more pleasing than that, as people don't make themselves unpleasant by dying, but merely go away. Thus writes F. B. Wickizer, of Great Bend Village, Susquehanna Co., Pa., unto Mr. D., of a town in Indiana:

"I have not heard from you since you left in April. I found your address on a paper in your things. If you want the watches and jewelry you left with me I can send them by mail if you will send me the $1.50 you owe me for board, and 25 cents for postage or, I will send them by express if you send me the $1.50 only. I could have sold 4 of your watches for twenty Dollars each to a fellow who went away last week. [Go West, young man! go West!!] Please send the money for the things as soon as possible or I shall be oblige to sell some of them for pay.

Very Truly F. B. Wickizer

P. S. We have 23 boarders here, some are city people."

That last touch shows "a grace beyond the reach of art." "We have 23 boarders"—you don't say so! Yet even this didn't cover the hook. Wickizer must feel very much disgusted to learn that he fished in the wrong place, and as his correspondent happened to be a boy who "has never been out of his native State," he may say that "the minnows stole his bait." Boy that he is, he reads the *American Agriculturist*, and with proper indignation, he denounces Wickizer's statement

"AS SIMPLY A FALSEHOOD,"

and "sends it to us (you) as a humbug." He truly says: "If I owed him $1.50, and he had the jewelry of mine, what would he care where I were? He wouldn't take the time and expense to hunt me up."....Oh! Master Charlie, if older heads but had your wisdom—the wisdom to look beyond the bait, and see the hook—the hardest kind of common sense to see things as they are, there would be no need for us to warn people against humbugs. Our friend Charlie is in luck. Besides the opportunity of getting all those watches and jewelry by paying his old board bill, he has a chance of getting rich.

"THE ROYAL POPULAR MONTHLY GIFT SOIREES"

sends him a batch of tickets, 10 of them, which he has only to sell, and remit $5, and they will send him one ticket in a drawing "in which every ticket will win a Prize." Mr. "Soirees," it is one comfort to know that your jig will soon be up. No more Post-office for you.... In medical matters, there has been nothing new for a long, long time. The most frequent in this line are the "Formula," or "Free Recipe" chaps. These quacks pretend to have either been missionaries themselves, or to have had their recipes, for either

CONSUMPTION OR NERVOUS DEBILITY

"placed in their hands by a missionary," and thus get their advertisements in the columns of the religious papers. We must make for the 100th (more or less) time, a general answer to the inquiries that we can not answer separately, that all but one of these "Free Recipes" that we have examined, call for articles which have no existence. The names are a mere jargon, and have no more real meaning than "Hydrofoetidygumbo." The circulars state that the drugs are very rare, or do not keep well, and that the advertiser has a stock of the genuine to sell at cost—the cost being $3 to $5. It is all a miserable humbugging dodge, and all the worse because played under the cover of the missionary cause.

Harvard and Arboriculture.

There is a general impression that our older Universities are somewhat behind the age, and do not meet the requirements of the present time. Harvard is certainly not open to this charge, for besides other indications of a progressive spirit in its management, it has recently established a Professorship of Arboriculture, which is, if we mistake not, the first in any academic institution in the country. The fund left by the late James Arnold, of New Bedford, Mass., having been transferred by its Trustees to Harvard, "The James Arnold Professorship of Arboriculture in Harvard University" has been founded, and its chair has been filled by choosing Mr. Charles S. Sargent to the Professorship. We do not see how a different selection could have been made, as another so well qualified for the position, by natural tastes, or by acquired knowledge, could hardly be found. Prof. Sargent has heretofore been connected with Harvard as Director of the Arboretum and of the Botanic Garden. While the new arrangement leaves him in full control of the Arboretum, it is to be regretted that it deprives the Garden of his services. In the few years that he has held the directorship of the Garden, the improvement there has been strongly marked, and whatever may be its future, the work already done by him in bringing the Garden into shape must have a permanent value. While the work thus far done at the Arboretum of Harvard has been preparatory, yet as a center of arboriculture, it has already had a marked effect upon tree planting and tree culture in Massachusetts. But such influences are not bounded by State lines, whatever is done in one State being useful in every other; hence the founding and development of this Arboretum is by no means a matter of merely local interest, but its experiences and teachings are of great value to tree-planters throughout the country. But few, other than those who know of the interior workings of such an establishment as this Arboretum, are aware of its far-reaching influence, or of the vast correspondence required of its Director, to answer letters from abroad as well as from inquirers at home. With such a center as this, and under the competent control of Professor Sargent, Harvard is exerting an educational influence which will be felt far beyond its academic halls, and this will, in time, prove that, in providing a fund for the promotion of Arboriculture, James Arnold, the New Bedford merchant, "builded better than he knew."

A Dictionary—Useful and Cheap.—People who have no other books, want a Dictionary, and the fact of this general want, has induced certain rogues to use the Dictionary as a swindling medium. From the nature of the case, a Dictionary can not be reduced below a certain size, and have it retain its usefulness. One of the best of the smaller works of this kind, is the "American Popular Dictionary," which, for a dollar, gives, besides the Dictionary proper, a large number of treatises and tables most useful for reference to every individual.

The Beating of Eggs is a simple matter, for one can do it with a fork, or with a bundle of small twigs. Small as the operation seems to be, the amount of inventive talent that has been expended upon still further simplifying it, is really astonishing. A few years ago we had the curiosity to look up and bring together the various egg-beaters, and the result was an accumulation of machines that was surprising. In egg-beating, as in other such matters, there are certain essentials, and these we found to be combined very completely in the "Dover (Boston, Mass.,) Egg-Beater"—a beater hard to beat.

Preserving Celery in Winter.—"J. L. L." and others. Though we give each year in the "Notes about Work" brief seasonable directions for putting away Celery for the winter, it would appear that many do not look there, but finding no special article on the subject, write to us concerning it. It would be well in all such cases to consult the "Notes," not only of the current month, but for one or two earlier numbers. As to Celery—nothing is easier than to keep it for the winter.—Heat and hard freezing are to be avoided, either will cause decay. Dig a trench in a place where water will drain off, a foot wide, and deep enough to take in the whole length of the celery. When there is danger of freezing weather—moderate frosts do not hurt it—take up the celery and set it up in the trench, putting in the plants as close as they will stand, with no earth between, and put on a light covering of straw or leaves. As the cold increases, add more covering, and when winter has fairly set in, increase the covering to about a foot; and put over boards lengthwise, to shed rain. Celery thus stored may be got at when wanted, and if water does not get into the trenches will keep well until the spring months. If one has a cool cellar, celery may be kept in that. Take any old boards and knock together long narrow boxes 9 inches or so wide, and of a hight a little less than that of the plants, and as long as may be convenient; place these boxes in the cellar, and put an inch or two of soil in the bottom of each; set the celery in them the same as in the trenches, and if to stand side by side do not put them nearer than 9 inches. The object is to avoid a solid mass of celery, which will heat and decay. If the cellar has an earth bottom, the boxes may be replaced by board trenches, the boards held up by stakes driven in the cellar bottom, and a passage-way between them. Keep as cool as possible without freezing.

A Wonderful Liquid.—Two ounces of a clear, colorless liquid in a bottle, for which we paid 10 cents. Had we needed a pound, it could have been bought for 90 cents. Forty years ago, we saw the same liquid sold for $3 an ounce! But that is not the most wonderful thing about it. A stick of Sulphur, solid, brittle, and light yellow, as every one knows roll Brimstone to be. A stick of Charcoal, solid, brittle, and black—and as unlike Sulphur as can well be. By proper treatment, this Sulphur and Charcoal were brought together, united, and made to form this clear, bright liquid! Can there be anything more wonderful than this? The Sulphur has lost its yellow, the Charcoal its black, the solid form of both has disappeared, and here we have a liquid, and so volatile that it appears to not like being a liquid, but is ready to pass off into vapor at a slight provocation. What greater marvel than this? What of the wonders of chemistry can be more striking? None, save it be the water, the salt, the wood, the—well, the everything around us. But to the liquid, which is known as *Bisulphide of Carbon*. If Charcoal, which is Carbon, is burned in the air, the oxygen of the air unites with the Carbon, to form Carbonic Acid, ordinarily an invisible gas, but which can be, though with great difficulty, condensed into a liquid and a solid. If, instead of burning Carbon (Charcoal) in the air, we burn it in the vapor of Sulphur,—a thing readily done—the Sulphur and Carbon unite, but in this case, the product in passing through a proper cooling tube, will appear as a liquid, the liquid in question, the *Bisulphide of Carbon*—and a very peculiar liquid it is. If one tries to mix it with water, he will find that the two separate as readily as oil and water, and the Bisulphide, being nearly one-fourth heavier, goes to the bottom; but with Alcohol and Ether it mixes readily. It is very volatile, evaporating readily at ordinary temperature, and it would be very difficult to keep, but for the fact that it does not mix with water, and that a layer of water on its surface prevents it from evaporating. Its odor is exceedingly disagreeable. When heated, it boils at about 115°. It burns readily, with a bluish flame, and with the odor of Sulphurous Acid, with which all who have lighted Sulphur matches are familiar. The remarkable reduction in price already mentioned, would indicate that there has been an increased demand, and its manufacture on a large scale. At the period of high price referred to, it was known only as a chemical curiosity. Now it is made by the ton. This increased demand is due to its remarkable solvent properties. The *Bisulphide* is the best solvent for India-rubber and Gutta-percha, and it is largely used in the manufactures of these articles. It dissolves Sulphur, Phosphorous, various Resins, etc., and is used in various processes in the arts. One use is in the extraction of various oils; the *Bisulphide* readily dissolves both volatile and fixed oils, and in many cases affords the most ready method of extracting these from leaves, nuts, etc., the *Bisulphide* being evaporated. Our story of a stick of Charcoal and a roll of Sulphur is already too long, but enough has been said to show that they may produce a truly wonderful liquid.

Plants and Plant Food.—Some plants are surface feeders, *i. e.*, their roots are short, usually small, and numerous, and only penetrate the upper portions of the soil, as in the case of the onion, turnip, and the cereals, though the latter are perhaps medium, rather than shallow feeders. It is easy to see that such crops must derive their nourishment from that portion of the soil which their roots penetrate, and are therefore surface exhausting. On the other hand, clover, lucerne, and the long roots, as carrots, parsnips, etc., are deep feeders, and exhaustive to the lower portions of the soil. These facts have a direct bearing on the succession of crops, and the application of fertilizers. If a fertilizer is applied to the land, it tends downward, and its descent depends upon the solubility of the substance and the porosity of the soil. To have, therefore, the least loss and the quickest returns, a surface feeding crop is the one to which to apply the fertilizer, and this crop should be followed by a deeper feeder the next season, which will bring the sinking food to the surface again. It is in this capacity that the clover crop is so valuable in a rotation. It is a great point to keep the plant-food within the reach of the roots of the plant, and it can be best done by applying it to a surface feeding crop, and follow it up (down rather) by a deep feeder, the roots of which penetrate far down.

Brick Making on the Hudson River.—Those who fear that the disappearance of timber will cause a want of building material, may be reassured when they learn the great extent of the brick manufacture on the clayey banks of the Hudson River. In travelling from New York to Albany along the River, one may count over 150 yards, each of which is now making from 20 to 140 thousand bricks per day. In 1873, 3,226,120,000 bricks were made, and 3,652 men employed, at an average of $1.25 per day, so that each man produced about 1,000,000 of bricks. Haverstraw is the center of the industry, and 40 yards, one of which is the largest on the river, are worked in the vicinity. Labor-saving machinery of the best kind is now used, and the smallest yards employ these machines for molding and pressing the brick.

Mullein.—"What more stately plants for the 'wild garden' can be found than our common Mullein?" is the highly commendatory question asked in one of the leading English gardening journals. "The Great American Velvet Plant" is held in high esteem by the lovers of the beautiful, across the water, while with us it is ranked only as a weed. They call it noble, with its "sturdy spike of yellow flowers above a wealth of bold foliage, all enrapt in a thick coating of grey, felted hairs." We call it a coarse, stiff, ungainly intruder, unworthy the room which it too often occupies. This is another illustration of the fact that the commonness of a plant, and the ease with which it may be grown, affects the esteem in which it is held. Our common Poke Root is highly valued in Europe, and it is really a most stately and beautiful plant, which would be valued here were it costly.

Sulphate of Iron for Grape Mildew.—Dr. A. W. Saxe, of South Clara, Cal., has reported to the California Academy of Sciences to the effect that he has made a thorough trial of Copperas (Sulphate of Iron) as a remedy for grape mildew and grape rot, with marked success. A solution of Copperas, four pounds to five gallons of water, is made, and applied to the trunk and branches of the vine, they being previously scraped to remove all loose and dead bark. The matter is worthy the attention of grape-growers troubled with the mildew.

North Carolina Experimental Station.—Dr. A. R. LeDoux, Chemist, in charge of this Station, has just sent out a Report of the investigations for the past year. The examinations of seeds as to their purity has revealed some striking mixtures; the Dodder seed, for example, making up a good part of some Clover seed. The treatment of the Velvet grass (*Holcus lanatus*), showing that this generally considered worthless grass is of merit as a renovater of worn-out lands in the Southern States, has already been noticed by us, and is of real value. An analysis of the Cow-pea of the Southern States supplies what has long been needed, and gives information that can be found nowhere else. The last third of the Report is devoted to the analyses of fertilizers, which has done much to free the market of worthless brands, and raise the best fertilizers to their proper place. This portion of the work of the Experiment Station is perhaps that in which its utility is more directly manifest than in any other; for it must have already saved large sums to the farmers of the State, and will save still more in the future. 'North Carolina has a right to be proud of the advanced position she has taken in agricultural matters, and may already be cited as an example to other States. It would be of untold benefit if every intelligent farmer in the State could have this Report and study its teachings.

International Dairymen's Convention.—A Convention of Dairymen is to be held December 9th, in connection with the International Dairy Fair. The reasons for this meeting are stated in the following call: "The indications from every part of the country point to the great necessity for the combined effort of all persons interested in dairy cattle, to collect and disseminate authenticated records of the yields of dairy cows, to the end that we may with far greater precision, intelligence, and method than it is now possible to do, improve and fix in our various breeds of cattle higher and more persistent milking qualities, and the ability to transmit those good qualities to their offspring. To accomplish this purpose, we, the undersigned, agree to meet in Convention at the American Institute, in New York City, December 9th, at 12 o'clock M., and organize an association for testing and recording the yields of dairy cows." This call is signed by a number of the leading dairymen of the country.

Agricultural Depression.—The British "Royal Commission on Agricultural Depression" has agreed upon the following heads of inquiry: (1), Condition of farms; (2), of farmers; (3), of laborers; (4), land laws; (5), land tenure; (6), agricultural education; (7), condition of estates; (8), agricultural statistics; (9), returns of exports and imports; (10), foreign importations. Full and accurate answers to the many questions which fall under the various heads, will be of great value to others besides those living in Great Britain. Under the last division, "the cost of the article at the American port, the freight, the profits made by the several middlemen," etc., will be of direct interest to us, producers, exporters, and all.

Tea Culture in the U. S.—Some of the daily papers have been very fast to accuse the present Commissioner of Agriculture with an attempt to introduce the culture of the Tea-plant into this country, and to treat it as a subject for ridicule. These papers have been, as they often are in all matters relating to agriculture, very wide of the mark. In the first place, whatever the Department of Agriculture has done in the way of encouraging Tea-culture in this country, was done long before the unfortunate appointment of Le Duc, and in whatever of blame or ridicule attaches to the matter he has no share, excepting so far as he attempted to claim the honor or prestige of originating the idea. But is the culture of Tea in the U. S. a proper subject for blame or for ridicule? The editors of these papers think that it is. Men who have devoted years of thought and experiment to the subject think very differently. As an indication that the subject is of no trivial character, but is worthy of serious consideration, the N. Y. Horticultural Society invited Mr. William Saunders, the long-time Superintendent of the Gardens at the Dept. of Agriculture, to address them on Tea Culture in the U. S., which he did on Oct. 7th last. Mr. Saunders, who has held his present position in the Dept. from its first organization, has been interested in Tea culture for many years. Having established the fact that the plant was quite hardy at Washington, and of course in all localities south of that, he set about utilizing this knowledge. It will be observed that he did not at once undertake to get up a "Great United States Consolidated Home-grown Tea Company—Limited"—with an astonishing array of figures and wonderful profits—on paper. But he did try to show that every family south of a certain line, expending annually from $5 upwards for tea, could save these sums by growing their own tea; the light labor of picking the leaves, and of drying them, being done by the members of the family. Believing that there was much unnecessary manipulation about the Chinese methods of preparing tea, Mr. Saunders has not hesitated to say that he believes that in time American ingenuity applied to this will greatly simplify the curing of the leaf, and that ultimately it may become a regular crop. We think that whatever of credit is due for the introduction of tea into this country, belongs mainly to Mr. S.; that he has seen the importance of a gradual rather than a spasmodic growth of the industry, and we regard the whole matter as one worthy of judicious encouragement rather than—what is too often seen—ill-considered ridicule.

Early and Late Sowing of Wheat.—Prof. Thorne, of the Ohio State University, has been carrying on some experiments with the early and late sowing of wheat. The early sowings, Sept. 9 and 16, were injured by the Hessian Fly. The third sowing, Sept. 23, proved the best—36 bushels per acre—and the two later sowings, Sept. 30 and Oct. 7, were 32 and 26 bushels, a very rapid decrease. This single set of experiments, so far as it goes, would indicate that neither the early nor late sowing is best, but the medium between them—late enough to escape the greatest ravages of the fly, and not so late that a poor start is made before winter sets in.

The Western N. Y. Agricultural Society's Fair.—Feeling that the State of N. Y. was too large for its agriculture to be adequately represented at one Fair, a number of farmers and others in the western part of the State formed a Society, and for several years past have held an exhibition. This year the show was at Rochester, and on the same date with the meeting of the Am. Pomological Society. The Fair was held at the Trotting Park, grounds admirably suited to the purpose. Our visit was on a miserably drizzly day, when everything was wet and uncomfortable; still we could see sufficient to show that the exhibition compared favorably with those held by the State Society, and we learn that, in spite of several unfavorable days, it was on the whole a success. A look about the grounds at this and some other fairs this fall, suggests the thought that our fairs are quite too much the mediums of enterprising shopkeepers. If John Jones transfers the contents of his dry-goods shop, and Wm. Robinson carries his stock of hats and caps to the Fair, it may be very well to make known the shops of Jones and Robinson, but we fail to see how it helps the agriculture of Western N. Y. It would seem that the time had come for a proper consideration of the objects of our fairs, and for the managers to see if they can not be conducted more for the instruction and benefit of farmers than they are at present. Size is not always a mark of excellence. Our remarks are merely suggested by, but do not especially apply to the Western New York Fair, which, in common with many others, was faulty in this respect, but as a whole, most creditable.

"Mr.," or "Esq.," or 0.—To "Inquirer," so far as we have observed, the present custom in good society favors the use of the prefix "*Mr.*," instead of the suffix "*Esq.*," when directing a letter to any gentleman whose official position does not call for the *Esq.* While it is a mark of respect to use one or the other of these, it would be decidedly preferable, if all would adopt the Friends' style, and omit any additions to the plain names, in addressing letters by mail to one not clearly entitled to the "Prof.," or "Dr.," or "Hon.," etc., because all such additions, unless written very plainly, are likely to be taken as part of the real name, and thus render the actual address less plain and conspicuous.

Colored Cheese.—Common sense has at last triumphed in the matter of coloring cheese. Dairymen used to insist that consumers would have colored cheese, but it is well known that this was all a mistake. The extent of the mistake may be seen by the quotations of the latest Liverpool markets, very choice colored cheese 35 to 36 shillings per 112 lbs., choice white cheese 36 to 38 shillings. This fixes it on a substantial basis.

The Massachusetts Horticultural Society.—This Society can now well be called venerable, for it celebrated its Semi-Centennial Anniversary on Sept. 12th last. The celebration was rather exclusive, so far as giving any notice of it goes. The occasion was appropriately marked by an address by the Hon. Marshall P. Wilder, one of its founders, a long time its President, and now, even at his advanced age, one of its most active members. Col. Wilder's address, though prepared during a season of bodily prostration, shows no mental decline, but is a remarkably clear sketch of the first half-century of a Society, the influence of which has been national quite as much as local. It is enough to wish that the second half century of the Society may equal in usefulness that which has now just closed. It is an Institution of which not only Boston and Massachusetts, but the country may be proud, as its influence for good has known no local limits, but has been felt throughout the country, if not in all parts of the world.

Self-Binders.—Wire for binding sheaves by binding-machines, was first used in 1874, when 50 tons were consumed. In 1875, 340 tons were required; in 1876, 2,800 tons; in 1877, 6,500 tons; in 1878, 14,000 tons, and a much larger amount, of which we have no returns, was used the past season. This shows a rapid increase in the practice of this method of securing the bundles of grain. For a time, a serious objection arose to this binding, on account of the bits of wire that, despite all care, would often get into the threshers, and if they did not injure the machines, they would appear in fine pieces in the grain. An ingenious inventor has provided a series of permanent magnets which attract these iron bits from the grain passing over them, and withdraw them.

Building Ice-Houses.—As this is the season for preparing for a stock of ice, and providing a place to put it in, it may be suggested that to every ice-house, a cold-house for storing meats, vegetables, and fruits, should be attached. Various methods are used in the construction of these, but it may be left safely to the skill of those who know precisely what is required to supply these wants. Those that have not this knowledge will find many hints for their information in previous numbers of the *American Agriculturist* in nearly every year about this season, and doubtless in good season hereafter. The chief rules in building successful ice-houses are, to have a good non-conducting wall; dry packing, well pressed down; solid ice closely packed; perfect drainage with air-tight foundations; ample ventilation at the top. Store the ice in dry cold weather.

Horse-racing and Side-shows at Fairs.—It will, of course, be understood that our stated contributor only expresses his own personal "view of the case" in what he says on page 459. The stand always taken by this journal against all efforts to level down, or "bolster up," an agricultural exhibition by introducing horse-racing, or any questionable side-shows, is well known. The largest, and financially the most successful, County Fair we have attended this year was more of a horse racing exhibition than an agricultural fair, by far—and, generally, more than ever before, the largest attention and the highest premiums are bestowed upon a few fast trotters. Shall this go on until the agricultural part of such "fairs" ceases to be of any importance whatever? The question is one of grave importance, and needs the careful thought and the thorough discussions of the wisest heads, who look beyond mere immediate success.

Poland-Chinas in Australia.—The D. M. Magie Company, Oxford, O., inform us that they have sent these swine, also called "the Magie," to Australia, and that the gentleman who received them reports that they took the three highest premiums at the great Metropolitan Exhibition of New South Wales. He also writes "such grand swine" as those sent him "were never before seen in Australia." This breed is one of established value, and is becoming widely known.

The New Jersey State Fair.—This year's Fair was regarded as the most successful ever held by the prosperous N. J. Society. Our visit was not on "the biggest day," not caring for the "Agricultural Horse Trot," though we must agree with those who advocate it, that it does draw the people, and fill the treasury. A conspicuous feature on the grounds was the Horticultural Hall, which was the large, well-filled "tent on the hill," under the superintendency of our good friend, P.T. Quinn. That this is a remarkable season for pears, was shown by the long tables loaded with this fruit, the favorite Bartlett leading in quantity, with scores of plates of very fine quality. The Women's Department was well filled with useful and ornamental articles, and the Poultry Pavilion contained much of interest. The Incubators were busy at their work, one of them having just turned out—not into a cold world, but a well protected little apartment—30 chicks, with scores more well on the way. If things go on in this fashion, hens can soon give their whole attention to the manufacture of eggs. But details can not be given. The fair was a success in more than one sense.

New Farms—Immense Number.—The forthcoming annual report of the General Land Office Commissioner will show that during the two years ending July 1 last, no less than **15,817,093** acres of public lands were taken by actual settlers, fully nine-tenths under the free Homestead act, which allows the actual settlers to take 160 acres each, except in the alternate sections of railroad land grants, where the amount is limited to 80 acres. The above 15,817,093 acres has therefore supplied at least **100,000** *new* farms to that number of persons. During the same period, there have also been very large sales of lands by the various railroad companies. Where the occupants of these new farms have left others further East, the land left has been occupied by others from still further East, or from Europe. It is probably safe to say that there are now some 250,000 more farms under cultivation than there were only two years ago. During the previous three years, the new land taken up amounted to only 3,500,000 to 4,000,000 a year.

The American Pomological Society held its 17th biennial session at Rochester, N. Y., Sept. 17-19 last. The meetings took place in a most convenient room in the City Hall, the gathering was large, and much was done to promote the objects of the Society in the way of fixing the status of fruits, the reports on new varieties, etc. The specimens brought by the members were exhibited in an ample tent on the grounds of the Western N. Y. Agricultural Society, which held its fair at the same time. This was, in one respect, a mistake, the grounds being some miles distant from the place of meeting, and one could not see the fruit without losing a meeting. After all, why should there be a general exhibition of fruit at the meetings of the Society? Every member knows the possibilities of Duchesse pears and Concord grapes. Let the exhibition be confined solely to *new* fruits, or to such specimens as settle disputed questions, or illustrate methods of culture, or something of the kind, and leave the exhibition of old and well-known varieties to local societies. If this course were pursued, but very little room would suffice for such an exhibition, and the members could keep together. The members will receive the report of Transactions in the Annual Volume. Greatly to the regret of every one, the President, the Hon. Marshall P. Wilder, was detained at home by the severe accident we have already noticed; he, however, sent his annual address, which was read with much feeling by Dr. John A. Warder, Vice President for Ohio, who presided for a part of the time. Aside from a Vice President for each State, the Constitution was amended to create the office of First Vice President, to which P. Barry was elected, and who presided at the remaining meetings. Notwithstanding that Col. W. declined a re-election, he was unanimously and by acclamation re-chosen to the office he has so long and so acceptably filled; besides the election of Mr. P. Barry, of Rochester, as First Vice President, a Vice President from each State was chosen, and E. W. Buswell, of Massachusetts, was made Treasurer, and Robert Manning, Secretary. In the address of the President, the usual notices of the deaths of those who were, or had been, officially connected with the Society, were given. The list included the names of W. C. Flagg, of Illinois, Secretary at the time of his death; F. R. Elliott, of Ohio, a former Secretary; Silas Moore, Vice President for Rhode Island; Dr. A. P. Wylie, Vice President for South Carolina; and Dr. H. A. Swasey, Vice President for Louisiana. The attentions paid the Society by the citizens of Rochester, were in good taste and acceptable. The place for the next meeting will be fixed by the President, in consultation with the Executive Committee.

Typhoid Fever Among Swine.—This disease, which is that known as hog cholera, is by no means an American disease, as is generally supposed. It is now prevalent in several places in England, and many districts where it occurs are isolated by the local authorities, in accordance with law. The affected animals are slaughtered, and an attempt is thus made to prevent the spread of the disease. Unfortunately, this stamping out process is remarkably ineffective, and year after year the disease exists, and causes enormous losses. The only advantage from it seems to be to shift the loss from the shoulders, or pockets, of the owners of diseased stock to those of the public. The results of these long continued efforts to eradicate the disease, by the English Government, are well worth considering with reference to a similar course suggested here.

Prairie Fires.—"Frank," Ottawa Co., Kansas, writes that prairie fires are abundant, and do more or less damage, but are not so destructive as one would expect in view of the great exposure of property, and the general neglect to provide any safeguards. The usual remedy, or rather preventive, is to form fire-guards by burning strips or lanes of grass when it may be safely done. A strip of prairie thus deprived of combustible material will act as a barrier to the fire. Our correspondent suggests that this matter should be attended to by the Government, which should organize the people into companies, with proper officers, to have general charge of the means of prevention. Organization of the people by themselves for this purpose would be a good thing, but the less the Government has to do with such matters the better.

Vermont Merino Sheep Breeders' Association.—The officers of the above named Association are: N. T. Sprague, Brandon, President; S. G. Holyoke, St. Albans, Vice-President; Ed. Stowell, Cornwall, Treasurer; Albert Chapman, Middlebury, Secretary. A copy of the constitution, etc., may be had of the Secretary.

Injury to a Cow's Teat.—"T. C. P.," Baltimore Co., Md. Cow's teats are frequently injured by their being trodden on in the stable, and by other accidents. In treating these, it is well to insert a milking tube in the injured teat, both to draw off the milk and furnish a stiff foundation for the healing process. The cut parts may be brought together with sutures, and should be well strapped with sticking-plaster cut into narrow strips, and well supported by covering the sound parts with the strips as well as the wounded portions. When thus treated, there is no danger of the misplacement of the parts, and as the milk flows away through the tube, there is no inflammatory action from its retention.

The "National Agricultural Congress" met at Rochester, N.Y., on Sept. 16, and was held for three days.—"How many members are here?" we asked of one of its principal officers.—"I don't know," was the reply.—"Are there fifty?"—"I could not say, but probably not."—Here were less than 50 men, probably not over 30, who convened as a "National Congress"—not more than would make up a respectable Farmers' Club. Now we would not say one word against the gentlemen who assembled under this oppressive name, "National," for we know that among them were some of the very best men that we have—men who would make any assembly respectable and to be respected—but there are not enough of them to be "National." This Association has the beginning of a society or body which has great possibilities, but so long as it consists of a mere handful of members, it has no proper claim to be considered "National." It would be a good—a most excellent thing, if the leading agriculturists from every State could come together annually and discuss agricultural topics. Can this be done? A nucleus, however small, is of great use in gathering others to itself. Can this present body do this? If it can, then we are heartily in favor of it. But if it is to continue as a select club, wherein one shall show how he increased the length of the parsnips, or another shall show how much Jonesea' "High Old Superwhats-its-name" helped the pumpkin crop, the sooner it ceases to call itself "National" the better. We should like to see a "National Agricultural Congress," but it is, so far as present indications go, among the things hoped for.

Illinois Farm Products.—We see estimates that the farm products of this great agricultural State will amount to $200,000,000 for the present year, which seems to be a fair calculation, as the total area amounts to 55,410 square miles, or 35,462,400 acres, and a large proportion of it is in productive cultivation or pasturage. An average yield of $5½ per acre, for all the land, would be $200,000,000—which is double the products of all the gold and silver mines of the entire country.

A Simple Protection for metallic surfaces, as of plows, and indeed of all other implements, tools, and many household articles, is a mixture of say a pint of lard and a piece of rosin (resin) the size of an egg, melted with it. This supplies a sort of cheap varnish that may be rubbed on with a cloth very thinly. The rosin will shut out air and moisture, and keep the surface bright. Steel knives and forks kept laid away for occasional use, if smeared with the thinnest film of this mixture, and wiped nearly clean, will be saved from rust. The coat is quickly removed by dipping in hot water, and wiping, when they are brought out for use. This applies to all metal surfaces, steel, iron, brass, etc.

The American Veterinary College.—Doct. Liautard and his associates, who have these many years struggled against various difficulties in their efforts in behalf of Veterinary Education, must have been especially gratified on the evening of Oct. 7th. On this occasion the College course for 1879-80 was opened, and the new lecture room was first occupied. To see this room filled with a large and intelligent audience, assembled to hear addresses by Profs. T. A. Lyons and A. W. Stern, who opened the course, indicated an interest in Veterinary Education that must have been gratifying and encouraging. We are glad to know that the College opens with a much larger class than on any former year, and that it includes a large number of well educated young men.

Tomatoes Rotting.—Complaints have come from Long Island, from Northern New Jersey, and lastly from Oregon, that there is great loss among tomatoes from a trouble which all agree in calling, "the Tomato Rot." Several years ago a similar complaint came from Westchester Co., N. Y., but we have since heard no more from that locality. It is now too late to learn anything about the trouble this year, but we would ask our friends, wherever it may occur next year, to watch their plants, and on the very first appearance of the rot, to send specimens. In all such troubles, the first step is to learn the nature of the disease. In sending specimens, state the variety of tomato, and if tomatoes have been previously grown on the same soil. Also how long the disease has been known, and the causes assigned for it in the locality. As our Oregon correspondent informs us that his entire crop is lost, the matter becomes one of serious importance.

The N. Y. Horticultural Society.—The autumn show of this Society came off Sept. 17-19, at Madison Square Garden, when this spacious building again manifested its peculiar fitness for such an Exhibition. We can not enumerate all that was exhibited, but note some of the most striking features. In the way of flowers and green-house plants, the S. B. Parsons' Sons Co., of Kissena Nurseries, Flushing, L. I., made a fine display, as did W. C. Wilson & Co., N. Y. and Astoria, L. I. This firm took first premium for the best new plant, *Olebachia palustris*, and for a window garden-box, attractively filled with Caladiums, Marantas, Ivies, and other plants; the same firm had an excellent Wardian case. Louis Menaud, of Albany, whose collections are very sure to merit prizes, carried off several for Agaves (12 species), Cacti (50 species), and Succulents (25 species), all in the perfection of growth. The basin of the fountain allowed of the exhibition of several rare aquatics, among which were a *Nelumbium speciosum*, with light purple flowers 8-10 inches across, exhibited by E. D. Sturtevant, Bordentown, N. J., who also had *Nymphæa Devoniensis* and others. Among Palms, J. T. Kennedy, Flatbush, L. I., took the premium for the best single specimen., as did Woolson & Co., Passaic, N. J., for the best collection of Hardy Herbaceous Perennials, of which they had 160. The best cut-flower prize was taken by Peter Henderson, of 35 Cortlandt St., and a remarkably rich collection of new and rare plants came from John S. Bush, Tremont, N. Y. James Vick, of Rochester, N. Y., carried off the prize in Gladioluses. The rare Australian *Stenocarpus Cunninghamii* was shown by Chas. Parnell. Bouquets, floral designs, baskets of dried flowers, grasses, etc., were as

attractive as ever. The Exhibition was more full in fruits than usual. Ellwanger & Barry, Rochester, N. Y., made one of their rare displays—an exhibition in itself, and were first in native grapes, peaches, plums, and in pears, of which they had over 100 varieties. E. P. Roe, Cornwall-on-the-Hudson, N. Y., had strawberries in pots, peaches, grapes, and apples. W. & C. Smith, 189 Broadway, N. Y., took the prize for the best ornamental basket of fruit. Chas. J. Copley, Staten Island, had the best six native grapes. Mr. J. H. Ricketts, Newburgh, N. Y., besides his wonderful grapes had other fruits, including the Miss Brett peach and Souvenir du Congress pear. J. S. Force, Newburgh, N. Y., had fine apples and pears. The prizes for exotic grapes were divided between Peter Henderson and Chas. Aitken. In vegetables, the collection of potatoes by B. K. Bliss & Sons, No. 34 Barclay St., was conspicuous; it included, besides the standard varieties, 51 new seedlings. It is surprising that so few vegetables are presented at these exhibitions. The premiums are liberal, and nowhere is their culture carried to greater perfection than in the vicinity of New York.

(*Basket Items continued on page* 479.)

Bee Notes for November.

BY L. C. ROOT, MOHAWK, N. Y.

WINTERING BEES.—Numerous inquiries are made as to the cause of the great loss of bees during last winter, and instructions are asked for, which will prevent a similar loss during the coming winter. There is probably no subject of greater interest than this, to both the novice and the experienced bee-keeper. Many who have had experience can succeed in wintering their bees comparatively well, yet I may safely say that none have, as yet, reached uniform success. Why, when a number of colonies, in apparently the same condition, are put into winter quarters, a certain portion of them should winter perfectly, while another portion wastes away, and the stocks become almost if not entirely worthless, is a question which yet puzzles the wisest?... In answer to the first question, as to the cause of loss in the past, I would say that it was probably due to a failure to observe some of the essentials which I shall point out, yet, with the mass of bee-keepers, these failures seem at times almost unavoidable. I predict heavy losses during the coming winter and spring from the same causes. It is notable that the yield of honey from buckwheat and other late blossoms has been very light, and, as a consequence, brood rearing was discontinued at a much earlier date than usual; hence one of the essentials to successful wintering is, to a large degree, lacking. It is important to secure a large number of young bees late in the season, and each colony should possess a sufficient number before it is time to go into winter quarters.

PROPER FOOD FOR WINTER.—Twenty to twenty-five lbs. of well-sealed honey or sugar syrup is the next essential. This amount should not be guessed at, but should be ascertained for each hive by careful weighing.

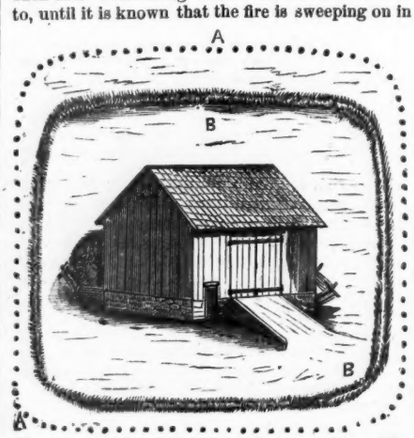
PROPER PLACE TO WINTER BEES.—While it may be desirable, in many warmer localities, to winter bees upon their summer stands, I recommend only in-door wintering for northern latitudes. Many advocate properly arranged, above-ground houses, but I prefer a dry, dark, well-ventilated cellar. If the cellar is not perfectly dry, place a stove in it, and keep a fire until the walls are thoroughly dried. This should be done in time to allow the room to cool before the bees are placed in for winter.

TIME TO TAKE IN BEES.—This is a point of much more importance than usually supposed. The exact date cannot be given, as the length of the seasons varies. With us, the time is usually from the 10th to the last of the present month. They should not be neglected until snow falls, as the hives will be wet, and they should be placed in the room as free from moisture as is possible. They should be handled with care, so that the bees will be as little disturbed as may be. Never make the mistake of closing the entrance to confine the bees to the hive, after placing them in the cellar. It would be far better to raise the hive half an inch from the bottom-board, thus giving an opening on all sides. This would afford better ventilation, and also lessen the liability of the dead bees falling down and closing the entrance if that be small. After the bees are properly arranged, the room should be left dark and as free from noise as may be.

PRESENT SEASON'S RESULTS.—Much interest is expressed as to the result of the present season's work, particularly as to the demand and supply of honey. Reports from all parts of the country indicate that the demand for the best qualities of honey will far exceed the supply. The demand for such honey has been largely increased during the last year, while the supply is one-half less. The best box-honey will be in demand at from 20 to 25 cts., according to the size and nature of the box, while prime extracted honey will be called for at from 15 to 16 cts. I think an acquaintance with the honey market for several years, will warrant these conclusions.

Back-Firing.

Those who live in the western portions of our country, do not need to be told that the close of autumn is often a season of great danger from fire. Eight years ago, the day on which this is written, Chicago was in flames; and throughout the country, thousands of acres of dry marshes, woodland, and stubble and meadow fields, were on fire. Upon the evening of that memorable day, the writer and several others was fighting fire, and "back-firing," to save farms, houses, and even the lives of the people. Those days of excitement, and nights of terror can never be forgotten, and that the experience there acquired may be useful to others, we will describe, aided by an illustration, the operation of "Back-Firing." It is well known that a fire increases in its fury, so long as its fuel is in abundance, and, therefore as the prairie fire moves on, its heat and rate of progress increases until it is impossible to meet it by a direct attack. We must deprive it of its fuel—this is done by back-firing. Let us suppose that a house, barn, stacks, etc, are in the path of a prairie fire. If nothing is done until the fire approaches very near, the chances are that all will be destroyed. By means of rakes, and if need be scythes, the grass, stubble, etc, is removed from a broad ring, of three rods or so across, the dry material being raked to the inner edge of the ring, as from the dotted circle *A, A*, to *B, B*, as shown in the engraving. After this space is made clean, and there is no more time to spare, begin at once to back-fire by lighting the grass, etc., along the front, represented by the dotted line, and on the side *only* towards which the fire is approaching. As this fire is in its infancy, it is easily controlled, especially if it is started in but a single place. As it spreads, watch that no sparks get near the buildings. In this way the combustible material may be burned away from all sides of the house and barns, and the approaching flames are met so far away by the opposing fire, that there is no danger from them or the flying sparks. The plowing of a circular belt, the same in shape that we have indicated, to be cleaned of imflammable material, is sometimes recommended, but it is not necessary if proper care is taken in starting and watching the back-fire. Back-firing should seldom be resorted to, until it is known that the fire is sweeping on in



PLAN OF BACK-FIRING.

the path of the buildings, as it may start a fire that may burn over the whole region, and cause great destruction of property. If early back-firing is done before the fires are approaching, a still day should be selected, and if possible, one just on the eve of a storm, that the coming rain may put it out.

Period of Gestation.— Beginning with the largest of animals—and there appears to be a relation between size and period of gestation—we have the following table as the average of many records:

Elephant	20-23 Months.	Bear	6 Months.
Giraffe	14 "	Sheep	5 "
Ass	12 "	Sow	4 "
Mare	11 "	Dog	3 "
Cow	9½ "	Cat	1⁹/₉ "
Reindeer	8 "	Rabbit	1 "
Monkey	7 "	Guinea Pig	3 Weeks.

This period is subject to considerable variation, especially in the case of the domestic animals. The breed, size of animal, heredity and other and unknown, or partially understood, conditions modify the period of which the above are the averages.

New Jersey Green Sand Marl.

A peculiar sandy deposit, of greenish color, is found in large quantities over a large section of country in Southeastern New Jersey. Three beds of it, the upper, middle, and lower, sometimes all of them in the same locality, and sometimes only one or two of the layers appearing in the same locality. Applied in large quantities to the light sandy soils of Monmouth County, and elsewhere, it has effected a wonderful improvement in their productive value, and, as it is abundant, efforts have been made from time to time to introduce it elsewhere. The Conn. Agr. Experiment Station has recently made a careful analysis of it, given in the first column below. The second column gives the analysis of another sample, made by the N. J. State Geologist:

	Conn. Exp, St'n.	*N. J. Geol.*
Moisture	16.70	
Combined Water	3.26	9.66
Sand (Insoluble Silica)	18 23	
Soluble Silica	26.65	50.30
Oxide of Iron	23.90	17.63
Alumina		8.77
Lime	.43	2.13
Magnesia	3.12	3 54
Potash	5.69	5.18
Soda	.60	....
Phosphoric Acid	.90	2.24
Sulphuric Acid		.39
Other undetermined matters	.42	....
Total	100.00	100.34

The first column gives in a ton, 114 lbs. of potash, worth, as a fertilizer, say 4½ cents per lb., or $5.13; and of reverted phosphoric acid, 18 lbs., worth say 9c., or $1.62.—Total value of potash and phosphoric acid, $6.75. By the same reckoning, that of the second column is worth $8.69 per ton. The large amount of soluble silica is believed to have a very favorable effect in cementing the light sandy soils. This deserves the attention of farmers.

Editorial Correspondence. — Items from Notes by the Way.

[We continue extracts from Mr. Judd's copious notes, gathered during his extended summer tour—as far West as Wyoming and Colorado. No order of time is followed in the selection, but some of the earlier observations made will appear in later numbers. ED.]

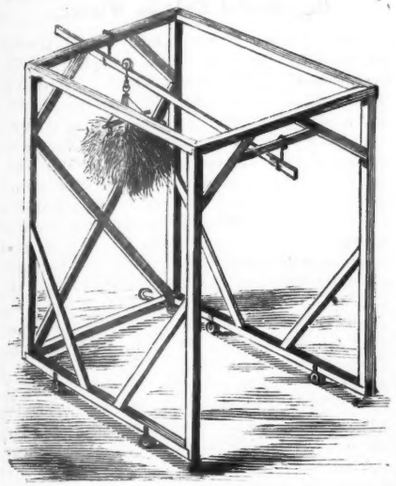
Personal Property—One County's List.

Owatonna, Steele Co., Minn.—The Census to be taken next June will show a wonderful aggregate in many single items. Without considerable thought and figuring, one can faintly appreciate the immense sums expended for any one of the little things that go to make up the comforts and conveniences of individual homes. I have just looked over the Assessor's report of 1879 for this county—one of the smallest in the State, 18 by 24 miles in extent, and embracing only about one-half of one per cent of the total area. (Minnesota comprises 83,531 square miles.) Remembering that it is but a few years since this region was first settled, and taking into account the usual omissions, and low assessment valuations, the following figures are interesting: Number of horses, 5,765; valuation, $252,627. Cattle, 10,458; valuation, $103,398. Sheep, 4,119; valuation, $5,970. Swine, 3,754; valuation, $7,418. Mules and Asses, 132; Wagons and Carriages, 1,953; valuation, $35,608. Agricultural Implements and Machinery, valuation, $70,198. Household and Office Furniture, valuation, $41,726. Melodeons and Organs, 140; valuation, $4,654. Piano Fortes, 64; valuation, $6,595. Sewing and Knitting Machines, 663; valuation, $9,331. Watches and Clocks, 716; valuation, $4,471.—A total of nearly One Million Dollars. Several curious suggestions arise in looking at these figures, as, for example: the Pianos exceed the Sheep in value—perhaps the dog laws are not sufficient, or efficient. The farm implements nearly double in value the household furniture. Horses more than double the Cattle in value. The Musical Instruments reach $11,249, while Sheep and Swine together are only $13,388. The entire Household and office Furniture foots up only one-seventh more than the Wagons and Car-

riages; and these last are just about half the value of the Agricultural Implements and Machinery.

Stacking with Horse-Pitchforks.

As noted elsewhere [page 377, last month], stacking hay is the almost universal custom in the timberless regions, and the stacks are usually long instead of round. On the farm of Mr. Lucien Williams, Harrison township, Winnebago Co., Ill., we saw a convenient Frame for unloading hay upon these stacks with a horse-pitchfork, which is easily constructed, and has proved successful in practice. We made a sketch of it for the engraving herewith, which will explain its structure and use. The three sills are of 6×6×6-inch timber, the two side ones 20 feet long, and the end one 18 feet long, or its length may be varied to the *width* of stack desired. The four corner uprights and the four plates are of



4×6-inch timber. The hight is say 26 feet—more or less, according to the hight of the stack. The braces are of 2×6 timber. A swinging track-rail is suspended for the pulley carrying the fork. This rail projects a foot or more over the load, which is driven up with its side against the braced end of the frame. The stack is built in at the open end of the frame. A structure 20 feet long, 18 feet broad, and 26 feet high, will suffice for unloading 10 to 12 tons of hay. As soon as the stack fills the length of the frame, the side sills are raised a little with a crowbar or hand-spike, and round billets of wood are put under. Two hooks are indicated in the cross sill, to which a team is attached by a chain, and the frame is quickly and easily moved along just its length, ready to add another section to the stack. The hooks, while convenient, may be dispensed with by putting the draw chain directly around the sill. The whole apparatus is simple, and can be put up by any carpenter. The great saving of labor, and, still more important, the saving of time when hay should be hurried in, will doubly pay for such a structure in a single season, even where only 20 or 30 tons of hay are gathered.

Form and Size of Hay-Stacks.

The simple covering for hay-stacks [page 377], and the unloading apparatus described above, indicate the one continuous long stack in preference to several small round stacks. There is another strong reason for preferring the long stack. In this form, a larger or smaller amount of hay can at any time be cut off from the end with a hay-knife, or even with an axe, without disturbing the rest of the stack, or exposing it to storms, as rain will not penetrate the smooth-cut end. One, two, three, or more, feet may be cut off at a time, either for feeding out or taking to market. The hight and width of the stack will depend upon its exposure to winds that would blow it over, and upon the total amount of hay, and the quantity to be used daily. The frame described above, with 26 feet posts, would leave room to top off a stack 15 or 18 feet high, with room under the track-rail for taking in the heavy forkfuls. The stacker, by standing on either side of the track-rail, could top it off 20 feet or more high. When the quantity is large, and the daily draft upon it is heavy, and where strong winds are not feared, the stacks may be 18 feet wide at the base, and 18 to 20 feet high, though 15 feet is usually high enough. The larger the stack, the less is the proportional exposure to weather. For limited quantities, and small daily feeding, 10 to 12 feet wide, and 12 to 14 feet high, would be large enough.

Barbed Wire Fences—New.

The matter of fencing is of great importance everywhere, and especially so all over the hundreds of millions of acres of treeless prairie between the Rocky Mountains and the Mississippi River, and still further eastward, embracing nearly all of the great State of Illinois, and the southern part of Wisconsin. Rails and fence boards are too expensive; the posts alone are a serious item. We have given much attention to this in many former visits, and especially so during this journey. For a long time the simple wires were resorted to, and the chief efforts at improvement looked to devices for keeping up the proper tension during the expansion and contraction of hot and cold weather. But they have always been unsatisfactory. The animals would run against and break them. They would crowd their heads, and often their bodies, between the wires in reaching for a choice bit of better grass, or perchance a cultivated crop, on the other side. Within a few years, various arrangements of

Barbs, or Sharp Points,

at intervals along the wires, have been provided, and double or triple wires used, twisted together like the strands of a rope, both to hold the barbs, and to diminish the difficulty arising from expansion and contraction of the wires. These were considered a great advance, and have been largely adopted. Indeed, at almost every railway station, and in many baggage cars, we have seen large amounts of these twisted and barbed wires coiled on spools, the projecting point on every side plainly saying, "*Noli me tangere*"—touch me not. We learn that about 40,000 miles of the different varieties of such fencing had been erected up to the end of 1878, and that some 20,000 miles more have been erected this year, so that there are at least

60,000 Miles of Barbed Wire Fence,

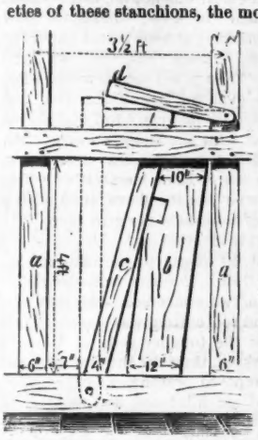
and the manufacturers are now turning out 75 or 80 miles a day, requiring 30 to 40 tons of iron. (A ton, 2,000 lbs., of No. 12 wire will make two miles of three strand, or 2⅔ miles of two-strand fence, four wires high. On the plains of Texas, and where animals are cheap, and the enclosures large, this barbed wire answers well. But there is the serious objection that when animals run blindly against it, or are forced upon it, there is always the danger that long gashes will be cut in the skin. We have found, here and there, farmers strongly opposed to its use, and have had related to us numerous cases of serious injury to valuable animals. Still, many say that it is so great an improvement over the simple wire that they prefer to use it, and run any risk of injury. In a few places, we found

A New Form of Barbed Fence,

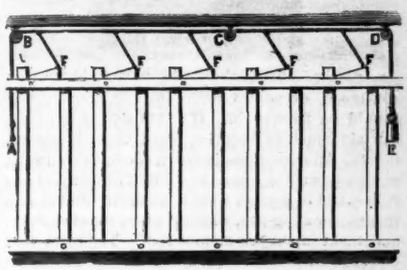
which struck us as a decided improvement. This consists of steel strips, galvanized, with a series of conical projections, at intervals, along one side. The strips are twisted in putting up, and the conical points while sharp enough to repel animals, being of cone form, will not "dig into" and tear the skin. The wide, bright, galvanized, twisted strip is also easily seen by the animals before running against it. [Since returning home we have sought out the manufacturers, and learned from them that the waste of material in cutting out the strips and points is so great that the fence is too expensive for general use. They are now at work, in accordance with our suggestions, preparing a combination of the steel strip supplied with clamps having the cone points, and we have strong hopes that in our next issue we shall be able to announce an arrangement that will be decidedly superior to any thing hitherto produced. If successful, as we feel quite sure it will be, the *American Agriculturist* will, as often before, have assisted in making another very important contribution to our farming interests.]

Stanchions for Cows.

On most of the Dairy farms we visited, the cows are kept upon floors 4½ feet long, slightly sloping to a urine gutter, and they are fastened with stanchions. Our sketch book contains several varieties of these stanchions, the most convenient one



of which we note here, but do not recall where we saw it. The uprights, *a*, *a*, are of plank, 6 inches wide, set 3½ feet from center to center. The horizontal piece is set high enough to leave 4 feet in the clear under it. The 12-inch plank, *b*, is set inclined as shown in the engraving, one side being cut off to leave it 10 inches wide at the top, and against this the piece *c* falls back. An opening is cut for the hand to conveniently grasp the upright, *c*, which, when closed, leaves the opening for the cow's neck 7 inches wide and 4 feet high. This answers for the average of cows. An animal with an unusually thick neck may require a trifle wider space. The special feature of this stanchion is the fastening or latch *d*, which falls into place whenever *c* is thrown upright, and holds it firmly. Simply raising the end of the latch *d* releases the cow.—[A stanchion somewhat similar to the above is shown in the, *American Agriculturist* of October, 1877, with also an arrangement of cords leading from all the latches to one cord at *A*, outside of the stable. The bars



are set to fall back by their own weight. Simply pulling the cord at *A* raises all the latches, releasing all the cows simultaneously, as in the case of a fire, or at any other time when desired. The weight *E* holds the cord back ordinarily, leaving the latches free for use.

Breaking Prairie Sod—Double Plowing.

The almost universal custom has been to turn over a thin layer of sod, as flat as possible, early in the season, and leave it to rot. Corn is frequently planted at once, and a moderate crop obtained the first season. Wheat is sown in autumn or spring upon the sod turned under the previous May and June, without disturbing it, except to thoroughly harrow the surface. We have found in several Western States a tendency to change this plan. For example, at Schuyler, Neb., (75 miles west of Omaha,) Hon. J. T. Clarkson, with whom we rode some 15 or 20 miles to examine a variety of farms under cultivation, showed us some fields of his own which he first broke last spring, and at once put in various crops, which were doing well when we were there in July. He first turned over the virgin sod 3 inches deep in the usual manner; but a second plow, following in the furrow, took up an inch or more of the deeper soil, and threw it over the inverted sod. This, harrowed, filled up the interstices between the sods, and furnished a fine soil seed-bed. The fine sub-soil of the Platte Valley may be better adapted for immediate use as a seed-bed without previous exposure to the air, than in some other localities, but probably there is

little, if any, of the loose prairie soil that at the depth of four or five inches would need atmospheric action.....At Marshall, Minn., Mr. E. S. Youmans treated a part of his land thus: It was broken May 10th to July 10th, 1878. Beginning Sept. 15th, the disk harrow or sod-cutter was put on, and the sods cut fine. It was then "back-set," that is, the plow was run deeper, and the cut sods buried under the loose soil turned up. Spring wheat was sown April 6th to April 20th. Though not yet harvested when we were in that region, the indications were that the land thus treated would yield 5 to 7 bushels per acre more than that with the single plowing. Mr. W. L. Nevins had 600 acres of wheat near Tracy, Minn., some 20 miles S. E. of Marshall, of which 540 acres were treated like the above, and the crop promised a yield of 8 bushels per acre more than that upon the simply inverted sod. He sowed the Fife Spring Wheat, 50 quarts to the acre, sowing April 6th to April 16th. Farmers in Eastern Minnesota, with whom we conversed, said that this double plowing and sod cutting was comparatively more valuable for the tougher sods of Western Minnesota and Dakota, than for the less firm and more readily decomposed prairie sod farther East. This is a subject of much interest, and we shall be glad to hear from the experience and observation of several of our readers in different parts of the West.

Root-Cellars and Root-Houses.

The leading features of a good root cellar are cheapness, nearness to place where the roots are

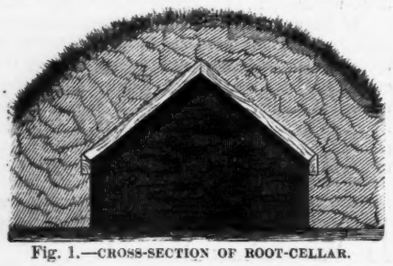


Fig. 1.—CROSS-SECTION OF ROOT-CELLAR.

consumed, dryness, ventilation, and, above all, it should be frost-proof. If a hill-side is handy, it can aid much in securing all of these important points. An excavation is first made in the hill-side, in size depending upon the desired capacity of the cellar, and in it erect a stout frame of timber and planks—or a log-pen, which is often the cheapest—and make upon this a stout roof. The earth that has been excavated, is then thrown over the structure until the whole is covered, top and all, to a depth of two feet or more. A door should be provided upon the exposed side or end. This door may be large enough to enter without stooping, or it may be simply a "man hole," which is better than a regular door, so far as protection from frost is concerned, but is not so handy for putting in and taking out the roots. Sometimes, when the bank is a stiff clay, such houses are built without putting up any side walls, the roof resting directly on the clay. A cross section of such a root cellar is shown in figure 1. In such cases, the facing, or front, of the cellar may be built up with planks, logs, or stones, as circumstances may allow. In figure 2 a facing of stone is shown; this is a large cellar provided with a wide door; it also has a window on each side, which are rarely necessary. Two tight

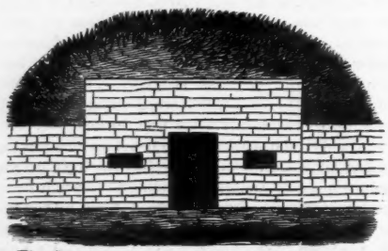


Fig. 2.—STONE-FACING OF HILL-SIDE CELLAR.

fences, of stakes and planks, two feet apart, and with earth filled in between, or of logs, or stout rails used in the same manner, make a cheaper front, and is a better protection against cold than stone. If there is no hill-side convenient, a knoll

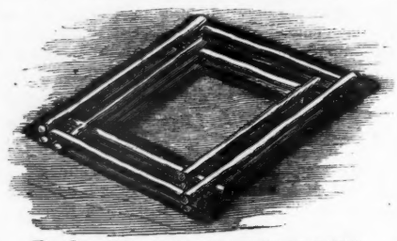


Fig. 3.—EXCAVATION AND BASE OF HOUSE.

or other dry place should be selected, and the soil removed over a space a trifle larger than the ground-plan of the house, and to the depth of two feet or more, provided there is no danger that the bottom will be wet. In the construction of the house, select poles or logs of two sizes, the larger ones to be shorter; these are for the inside pen, as it is subjected to greater strain. The ends of the logs are cut flat, so that they will fit down closely together, and make a pen that is nearly tight. At least two logs in each layer of the inner pen should be cut long enough to pass through and fit into the outer pen, to serve to fasten the two walls together, the space between the two being two feet on each side. Figure 3 shows the excavation, and the beginning of the house-walls, with the method of "locking" them together. The doorway is built up by having short logs, which pass from one layer of poles to the other, and serve as supports to the ends of the wall-poles; this is shown in figure 4, where the house is represented as completed. The space between the two walls is filled with earth, sods being used to fill in between the logs to block the earth. It is best to begin filling in the earth before the walls are completed, as otherwise it will require an undue amount of hard lifting. When the walls are built up to 5 to 6 feet on one side, and about 2 feet higher on the other, to give the necessary slope, the roof is put on, which should be of poles placed close together, well secured to the logs, and covered with sod, 18 inches of earth, and sodded again on the top. Two doors should be provided, one on the inside, and the other on the outer wall, both to fit closely. A filling of straw can be

Fig. 4.—ROOT HOUSE COMPLETED.

placed between the doors, if it is found necessary to do so in order to keep out the frost. Figure 4 shows the root-house as thus constructed, and is a structure that will last for many years, paying for its moderate cost many times over.

The Mothers of Early Lambs.—Ewes now in lamb, whose lambs are intended for early market, should be separated from the rest of the flock, and kept by themselves. A covered yard having a number of small retired pens, one for each ewe, is most convenient, as each ewe may be examined when necessary, without disturbing the others. Here the ewes should be well fed. A sheep in good condition experiences no trouble in lambing, and the lamb will be thrifty and strong. A run in a field for an hour or two for exercise, is too beneficial to be neglected. Before the lamb arrives, the ewe should be closely tagged about the hind parts and the udder, and this, with all other things needful to be done, should be attended to as soon as may be, and before the ewe's time has nearly approached. When that is about to occur, she should not be disturbed, but left alone as much as possible.

A Wasteful Interest Paid by Farmers.

There is no disputing the fact that any farm implement, be it wagon, plow, harrow, reaper, rake, or what not, if left exposed to rain and sun for ten years, will be practically good for nothing. We might say in five years, but if any choose to cavil at five, we will say ten. *This is ten per cent per annum!* At a cost of less than *one* per cent, these tools can be kept always housed, or under cover of some kind, even if but rough boards, that will shut out sun and rain. Because we do not see the silent, slow, but steady, waste, we are apt to forget that it is ever going on. It is unnecessary to suggest the "application" of this short sermon. Nine per cent interest *saved* is not to be despised, even if better times are at hand.

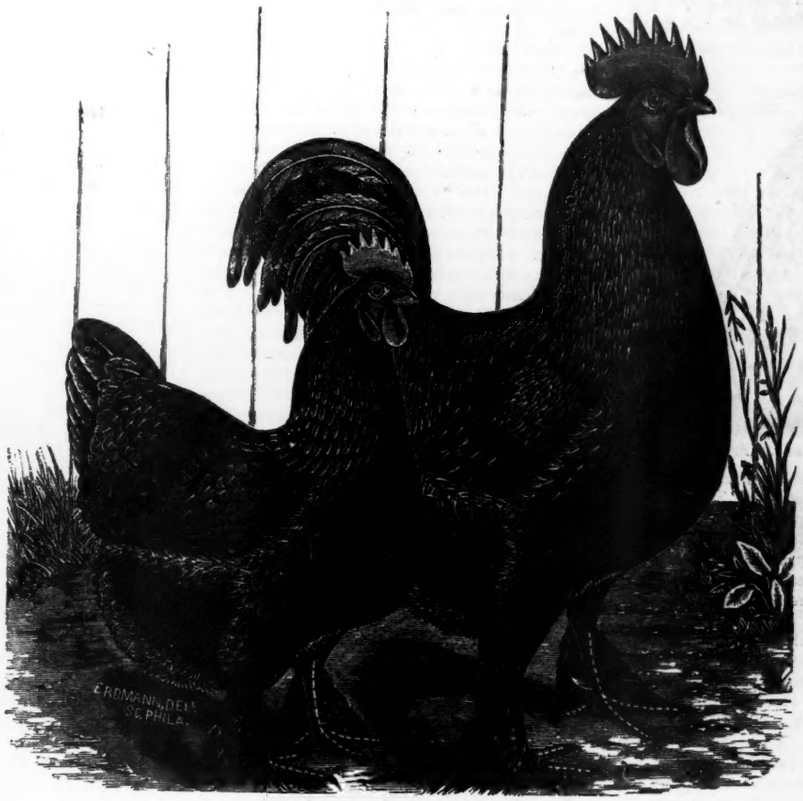
Ornamental Beds in Winter.

A correspondent at Staten Island, writes that he has his lawn filled with ornamental plants, which the first hard frost will make desolate. He asks if these beds can not be filled with something to present a more attractive appearance during the winter. On Staten Island, through the influence of the sea air, snows remain for a much shorter time, and the surface of the lawn and the beds is bare during a much greater share of the winter, than a few miles inland. There are many other northern localities where the same thing occurs from local causes, and in these, as well as in the uncertain winters farther south, it is desirable to make the beds upon the lawn attractive. It can be done, but it must be prepared for in the spring. The best treatment for such beds is to fill them with Evergreens. There are numerous low-growing Evergreens of a sufficient variety of color to produce pleasing effects. There are various shades of green from the lightest and bluest to the richest and darkest. There are species in which the golden and silver variegation of the foliage are distinct, and, what is of most importance, is held through the winter. The winter is the proper time to visit the nurseries to make selections for this kind of bedding, as in some the color in winter is very different from what it is in summer. The plants, selecting low-growing kinds of different hights, *should be potted* in spring, and carefully grown through the summer, plunge the pots, and shade the plants, for the first season at least; of course, watering must be attended to, and every care given to insure success. The Evergreens should be selected and purchased according to a well-considered plan; and when the beds are cleared, after frosts have despoiled the plants, the Evergreens are to be placed in them, plunging the pots as before, according to the plan European Ivy will make an excellent margin for such a bed, trained carefully, and pinned down where need be; the Ivy may be grown during the summer, and left there all the time, as it makes one of the best margins to the beds in summer for whatever plants they may contain. The Golden Retinispora (*Retinispora plumosa aurea*), is another excellent plant for edgings. It may be kept as low as may be desired, by cutting, and will make a pleasing edging in summer if some plant that presents a good contrast be placed within it. The same plant, but grown taller, will be found useful in contrast with others in filling the beds. Proper attention given in time to selecting the plants will allow of the production of pleasing winter effect.

Barn-Yards.—There have been many plans for the improvement of barn-yards, but after all the old-fashioned, dished yard, cemented, puddled, or deeply littered in the center, has hardly been improved upon. If, however, the barn-yard was roofed over, so as to protect it from rains, and the water from the roof were carried to a cistern and used for watering stock in the yard, there could scarcely be a better arrangement. A tight roof is not necessary. A few leaks, even large ones, would not be seriously objectionable; a roof of single boards, laid close together, and pitched and sanded, would cost about $3.00 per 100 feet, and a yard 20 by 50 feet, thus protected, at a cost of $30, would certainly be found a cheaply procured convenience.

The Langshan Fowls.

The introduction of the Langshan breed of fowls into England, several years ago, was marked by the publication of their portraits in an English journal, a picture which was, in due time, reproduced in our own columns. Though the article published with the engraving plainly indicated that our description of these birds was derived solely from English sources, we received scores of letters asking where the birds could be had, some even asking the price of "your (our) Langshans," and even at the present time we now and then receive similar letters. Though our experience in this matter was somewhat unprofitable in the trouble it gave to reply to inquiries, still it was interesting. While we were aware of the interest in poultry raising, we had before no idea of the avidity with which every promising novelty was seized, and of the wide extent to which this interest prevailed. The Langshans have at length been brought to this country, and in view of the interest our former notice and English picture of them excited, we give an engraving of a pair as they appear in the yards of Messrs. Benson, Maule & Co., Philadelphia. These birds are black, with a strong "beetle-green" reflection, and their legs slate color, with pink between the toes. Their nearest relatives, in appearance, are the Black Cochins, but the Langshans have a more erect carriage, larger combs, and tails more feathered than in that breed, and they come from a locality 1,000 miles further north. Being from the extreme northern portion of China, it was expected that they would prove remarkably hardy, and English experience has shown this to be the case. Extreme hardiness, large size, and rapid growth, are claimed for them, while their flesh is said to be unsurpassed in quality. They are less inclined to sit than other Asiatic breeds, and are prolific winter layers. We are glad that this breed has been introduced, and is now to be procured by our poultry raisers; if in this country they sustain, as they promise to do, the claim made for them in England, they will prove a valuable addition to our choice breeds.



A PAIR OF LANGSHAN FOWLS.

Among the Farmers.—No. 46.

BY ONE OF THEM.

I write this just in the midst of fair time—the Farmer's Holiday—if he has one in the whole course of the year. I have attended two State Fairs, besides one in the county, and of course have my notions. Two States lie contiguous, one is large, the other is small. The larger State held its fair first. The old and honored Agricultural Society is managed by farmers, "Gentlemen Farmers" if you please, but they are good farmers. Its President is a farmer, its Secretary a farmer, and in its long list of Vice-Presidents, I observe the names of farmers only. It is chartered for the benefit of farmers, and holds its fairs in the midst of agricultural sections, where converging railroad lines and facilities for travel make it convenient to assemble, and masses of people can be accommodated. Liberal prizes are offered and awarded most conscientiously year after year. The greatest effort on the part of the officers and attendants is put forth to secure the safety of goods, and live stock, their fair display, and free return to their exhibitors. Prizes are offered only for articles legitimately connected with the Farm, Garden, and Household. There is no horse racing; there are no trials of speed, which of themselves determine the award of prizes. In all things, the producer's interests have precedence. The prizes are paid, whether the weather be favorable or not, whether the Society reap a harvest of half-dollars, which makes it independent, or meets with such bad weather, or "ill luck," as to be obliged to fall back upon its friends, to make good deficiencies. The services of the best judges obtainable are secured long beforehand; their expenses are paid, and their stay made agreeable to them. One would think that the farmers of a State, supporting a Society like this, would meet the opportunity heartily; would gather in thousands upon its show grounds, bringing their wives and their children, and if they do not compete in friendly rivalry for the prizes, that they would certainly not miss the opportunity offered to see new implements, improved stock, and farm products, which others deem worthy of competition.

The weather was superb, the most comfortable and cheap conveyances to and from the grounds, a large and thrifty town at the gates, and several others within a few hours' journey, with railroads penetrating rich farming and dairy districts in every direction. Yet not more than 10,000 people came at any one day, to the fair, and the farmers and the dairy folks were conspicuously absent. The Society barely taking in money enough to pay its expenses and prizes, if even it did so well as that.

It is often flung in my face as a farmer, and one earnest for the elevation of our agriculture—that farmers are not worth working for—that they are good to make money out of—that they have not the pluck of other craftsmen, to help themselves, but need protection in various ways, and are the prey of the crafty and the dupes of politicians. This is sweeping, but has a basis of truth, and when made on the fair-ground, I found it difficult, as I saw the scattered attendance—the few in place of many—to meet it with an indignant and truthful denial.

It seems there is some rivalry and petty feeling between two Dairymen's Societies, both having their headquarters in this very section where the fair was held, and as a result of this rivalry, the dairy people held aloof from the State Agricultural Society. A clearer case of "biting off one's own nose," can hardly be imagined than was furnished here.

The other State Fair is managed by a Trotting-Park Association, near two large and thriving manufacturing towns. It is only called a "State Fair" by courtesy, and because the State entrusts the Association with the awarding of a few thousand dollars in prizes. It is a purely money making operation—a great show. Each day after the goods have arrived, and are placed, and the cattle and horses accommodated, which takes two days, there is something to see. Horse racing, mountebank, and side shows of all kinds within the grounds, every sort of trap for pennies, is running or set, all the time. An orderly crowd, beautiful horses, excellent cattle of all kinds, and acres of implements in the open field. Judges are invited beforehand, politely treated, and given tickets to dinner in the "Director's dinner tent." The sum total of prizes offered is liberal. Prizes are offered and awarded to "Durhams," and "Alderneys," because neither the officers nor the judges know any better. The exhibitors, some of them at least, are thoroughly informed, and have as fine animals of both "Shorthorn" and "Jersey" breeds, as one often sees. It seemed to be a real piece of good luck if the best animal got the prize over an inferior one in several classes, and yet exhibitors submitted to their fate at the hands of "judges" who were "down on pedigrees," with commendable patience.

Now, as to the attendance—30,000 people were admitted on the principal day; 20,000 the day before, and 10,000 the day after—this, in round numbers. More than half seemed to be farmers. They did not come on account of any real or fancied benefit they might get. Very few studied the implements, or the cattle, they gaped with wonder at the asserted weight of the fat hog, to be seen for 10 cts., but few went to see. They watched the horse-trots, and the "bicycle tournament," and the merry-go-round, and had a good time, and will come again next year. They "did not see any thing very new among the tools," because they did not look, and they walked by three or four Jersey cows, which cost their owner $1,000 to $1,500 apiece, as if they were inferior to those that grazed in their own pastures. Yet they came, and spent their money, and *absorbed* a great deal that will do them good. It will do the boys and girls good too. It will certainly do more good than the great well managed Fair will do the farmers of the section where it was held, and who did not turn out to attend it.

I must say I believe in getting the farmers, and other folks too, out to the Fairs. If they will not come to the sober matter-of-fact strictly agricultural show, let us give them something that will draw. A few horse-trots, side-shows, and even a rope-dancer, are harmless. They help make "a good time" for those who come for that purpose, and the thrifty business view is, that very few things are evil which bring in the half-dollars. I don't subscribe to that sentiment, but we know what is the healing plaster for "the hurt that honor feels."

The facts I have stated are surely worth considering. Here are two Societies, one is solely and purely for the farmers' benefit. The farmers hold aloof. The other uses the farmer and his profession simply to make money out of him, and the farmers throng its gates and crowd its grounds, because those grounds are made attractive. These are the facts; I need to say no more on this subject.

Thoroughbreds or Grades.

I am more and more impressed by the fact that few persons are fit to breed pure animals, except as they take continual out-crosses and raise thus a sort of grade-thoroughbred. Breeding in line, close breeding, or in-and-in-breeding, is for few to follow. It is this sort of breeding which secures the best types and the strongest blood, and what we hear now-a-days called "prepotency." A lucky hit is made in crossing different families of some breed, then it is followed up, and by systematic and close, but judicious, in-breeding, the type becomes fixed, and if other breeders admire it and it becomes fashionable, fortune comes to the breeder; otherwise he has no special profit. He would no doubt have had better animals if he had used occasional out-crosses, but he would have impaired the prepotency of his strain of blood. If his family is to become famous and popular, he can not afford to lose this quality—if not, he had better not aim so high. Considering, then, the fact that very few can succeed, it is undoubtedly best that very few should try to establish a true family or strain of blood of neat cattle, sheep, swine, or other animals.

Fig. 1.—SECTION OF PIT.

I am led to these "reflections" primarily from studying "Poland-China," "Jersey-Red" or "Duroc," "Victoria," and "Cheshire" pigs at the Fairs. With the exception of the Jersey-Reds, called Durocs for some unexplained reason, these are all mere crosses which have been bred together until a sort of fixed type has been arrived at in each case. The "Poland-Chinas" have become popular, and are now fast reverting to the Berkshire type from which they were formed. The others are not popular, and never will be in all probability, because we have better breeds ready at hand in the Berkshire, Essex, Yorkshires, and the now established breed of Chester Whites. As to the Jersey-Reds, whatever is good about them is like the Berkshire, and they have such a peculiar color, smooth clean skin, and are withal so hardy north and south, that it is perhaps worth while for some one to undertake their improvement by shortening their faces, setting their ears up, and breeding them finer in bone. Then, with their long bodies, and large meaty hams, they will be excellent pigs for the farmer to grow, even if they never are fashionable.

The so-called "Holderness" Cattle.

I was very much interested by an exhibition of cattle made at the New York State Fair by Mr. T. A. Cole, of Solsville, N. Y., under the name of "Holderness." It seems that some 50 or 60 years ago cattle were imported to this State from the district of Holderness in the West-Riding of Yorkshire. They were much like the Durhams, as they were then called, had no especial pedigrees, but were excellent milch cows, like those now raised in that district, and called "Common Cows," and which are indeed the mothers of the bulk of recorded Shorthorns of the English Herd-book. Mr. Cole bought a cow said to be of this "Holderness" blood from imported stock, and without any foreign cross. She was in calf to a bull of the same breed, was red and white in color, of large size, and an excellent milker and butter-maker. She had a bull calf, and in due time she was bred to him, and by him and others of her descendants and their produce, bred together without a drop of outside blood, Mr. Cole has formed a curious and interesting breed. The whole stock of this blood numbers now, after 25 years or more since the old cow was purchased, some 250 head more or less. I write from memory. They are all very much alike. The color has changed very noticeably. The calves are all dropped red and white, but after a while change to black and white, or to a dark reddish-brown, nearly black. At the fair casual observers passed them by as Dutch cattle. Several of the older ones were distinctly reddish, while none were jet black like the Fresians or so-called "Holsteins." The cattle of this "Cole-Holderness" breed are of good size and fair form as beef animals. Not unlike those Shorthorns which show especial tendency to milk. They are deep-bodied, with large udders and teats, with excellent escutcheons, great swollen and tortuous milk veins, and skins as yellow as Guernseys. The interior of their ears was almost like orange peel. The butter made from their milk was exhibited by the commission merchant in Utica to whom it is regularly shipped, and showed admirable color and keeping qualities. He showed butter in pound prints made in May, June, July, August, and September. It was all good and high colored, but not quite so deeply yellow as Mr. Ledyard's Guernsey butter which won the prize. These cattle are said to fatten very kindly when dry. They are excellent handlers, and really were a surprise, showing what good judgment in breeding can do with a fixed end in view, and a keen breeder's instincts to guide in pairing, weeding, and feeding. Could we test the various breeds of cattle, with the view of determining with accuracy which is the most profitable dairy cow for all purposes—*butter*, *cheese*, *veal*, and ultimately *beef*—giving to each its fair weight in the scale of excellence, I would not be surprised if Mr. Cole's breed would win the distinction of being the most useful of all.

A Ventilator for a Root Pit.

In pitting roots, abundant openings should be provided for the escape of the heated air and moisture, produced by the ripening and fermentation of the roots. All moist vegetable matter, when packed closely in a heap or mass, will begin to heat and ferment in the course of a few hours. The heat produces considerable vapor, which must pass off, and in its escape carry off the heat with it, else the temperature will increase, and, before long, decomposition will begin, and the mass will rot. Danger of this is averted, both by having the roots free from outside moisture when pitted, and by facilitating the escape of that which they give off. This is usually done by leaving open spaces every few feet at the top of the pits, into which bundles of straw, or drain tiles are placed, to serve as flues. But it is well to open a ventilator from the bottom of the heap, into which the hot and moist air may escape from all sides. This may be done by tying a number of rails together, as shown at figure 2 (the more crooked the rails, the better, as they will provide more spaces), and placing a bundle in the pits at about every 6 feet of their length. The top of each bundle projects a few inches, and this may be protected by a cap of straw, as shown at figure 1. This cap should be tied firmly to the top of the rails, to secure it from winds, and to shed rain. If small bunches of straw were fixed in the bottom of the pit, as shown at *a*, half-way between the ventilators, and so long as the weather is not too cold, they would greatly facilitate the cooling, and drying of the roots. When frosts are looked for, these bottom air holes should be securely closed, and then the roots can take care of themselves.

Fig. 2.

Smoke-Houses.

As the season comes around we have, as usual, numerous inquiries for plans of Smoke-houses. Now, that brick is very cheap, buildings of this kind are made of that material rather than of wood. One who is not a mechanic can build of brick as easily as of wood, if not more easily. In fact, an amateur mason would be very apt to make a more solid job than a professional one, because he would use a plenty of mortar and not leave the bricks bare in many of the joints, as is the too frequent fashion with the workmen at present. At figure 1 we give a sectional view of a brick smoke-house, which may be made of any size; one 7 by 9 or 8 by 13 feet will be large enough for private use; but the plan admits of application for the largest sized building. At the bottom of the building is a brick arch, with bricks left out here and there to give passage for the smoke. Above the arch are two series of iron rods, supplied with hooks with grooved wheels, by which the ring with its burden may be pushed back, or drawn forward, as desired. The wheel-hook is shown at figure 1, and can be procured at any hardware store. At figure 2 the house is shown in perspective, with the open arch-way for the fire, and the door provided with steps. Above the lower bar and below the upper one, are a series of ventilating holes through which the smoke may escape. These are made by leaving out a brick, and can be shut by inserting a brick closely in the vacancy. At figure 3 is the arch which confines the fire and ashes, and prevents any meat that may fall from being soiled or burned. A few open spaces will be sufficient to permit the smoke to pass through. This arch is built over a wooden frame (fig. 4), made of a few pieces of boards cut into an oval arch-shape, to which strips of wood are nailed. When the brick work is dry the center is knocked down and removed. A loose door may be made to shut up the arch when the fire is kindled, for safety and economy's sake.

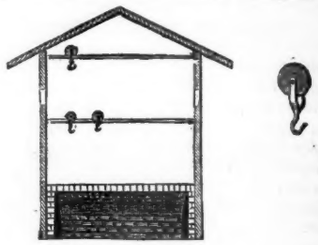


Fig. 1.—SECTIONAL VIEW.

Fig. 2.—ELEVATION.

Fig. 3.—THE ARCH.

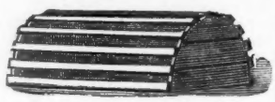


Fig. 4.—FRAME FOR ARCH.

Cotton-Seed Meal. — This valuable feeding stuff being cheap, may easily be fed to excess. It is highly nitrogenous, and is costive in its effects.

Costiveness is a dangerous condition, because the system becomes overloaded with effete matter which is not carried off by the bowels, and the blood may become poisoned. In feeding this, or any other concentrated food, caution should be exercised lest too much be given. One ounce daily is enough for a young calf; two ounces for a yearling; two pounds for a cow, or four to six pounds for a fattening steer at the finish. It is safe to mix cotton-seed with bran, which will tend to neutralize the costive effects of the former food.

Restoration of River Banks.

One of the greatest victories of scientific engineering, is to compel natural forces to repair the injuries they have done, or to serve the purposes

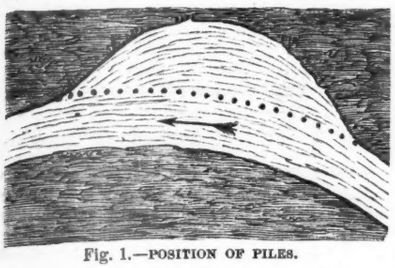


Fig. 1.—POSITION OF PILES.

of mankind in other useful ways. One of the most remarkable engineering achievements of any age, is the opening of the principal mouths of the Mississippi River, by compelling the river to do its own dredging, and to take up and carry out to the Gulf of Mexico, millions of cubic yards of mud and sand, which the waters had previously brought down. This great work was done by constructing long lines of willow work on each side of the channel, and sinking them in mud and securing them there. By this means, a broad, shallow, slow moving current, which had deposited an enormous amount of sediment for many years, was confined to a narrow channel, and the increased velocity of the water consequent upon this confinement scoured out the bed of the river, and moved the sediment miles out to sea. Where formerly only small sloops could float, now the largest ocean ships and steamers can pass in and out, and a most important highway for the commerce of the great West has been opened. What the river has been compelled to do, could have been done in no other way. In another instance which is noteworthy, because it can be applied, in hundreds of cases, to smaller streams which have washed out their banks, and threaten to do further damage, the same river, the Mississippi in its upper portion, was made to fill in a large washout, to restore what it had taken away, and repair its own mischief. At a bend of the river, the banks had been undermined, and high bluffs only remained, which were continually falling and being carried off. It was desired to carry a railroad along the river bank, and the engineer in charge devised the following plan: The washout formed an extensive curve, which had cut in 200 feet from the original bank. To have filled the whole of this, would have been an enormous expense, and no material but stone could have withstood the rapid current. A straight row of piles

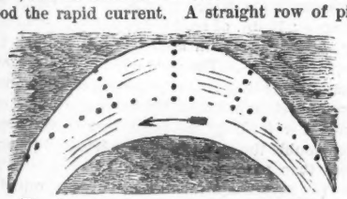


Fig. 2.—POSTS TO OBSTRUCT CURRENT.

was driven in the line where the bank was desired, from one end of the long curve to the other, and stone was dumped around each pile. This arrested the current, and the muddy waters lost their velocity so soon as they met the obstructions. The sand and earth which were suspended in the water, were deposited so soon as the current slacked, and in a few weeks, the whole washout was filled up. This having been done at the June freshet, when the water is unusually high and muddy, a bank, which was several feet above low water, was formed behind the piles and stone, up to the bluffs, and when

Fig. 3.—THE BRUSH.

the river fell to its lower stage, it was easy to complete the work. In this way a large expenditure was avoided, and an embankment was made much more solid, than could have been done by filling in. At figure 1 we give an illustration of the manner of arranging the piles; the piles being represented by the dotted line, and the washout being behind them. There are numerous cases, in which streams have injured their banks, and have carried away valuable ground. The mischief may be remedied in a similar manner to that here related, instead of the more costly plan of building timber and stone breastworks, which, after all, do not replace the lost ground, and only prevent future damage. In like manner a washout may be arrested, as soon as it has begun, and further mischief prevented. At figure 2 a plan is given, for the arrangement of lines of posts to obstruct the current, and cause a filling in of a washout; posts 6 feet long or more, as may be required, or rails will answer in many cases, are put down in pairs, 2 feet apart, where each dot is marked. There should be a row on the original edge of the stream, and cross rows from this to the bank; the spaces between the poles are filled with brush, as shown at figure 3, the brush being placed

Fig. 4.

across stream, as shown by the arrow, to offer the greatest obstruction. The posts may be 20 feet apart, and the brush may be cut in 10 or 12 foot lengths. It is not necessary, and might be objectionable, to entirely close the space with brush, and fence out the current; the object is to admit only a part of the water, and retard the current, so as to cause it to drop its load of sand or mud. The spaces will be half closed if 10 foot brush is used, with 20 foot spaces. The brush is held down, by driving a few hooked poles (figure 4), into the mud between the branches here and there, by which it is kept from washing away. A few loads of stone dropped in the rows around the poles, would be useful. As the deposit accumulates, more brush may be laid down in selected places, and held by the hooked poles, as previously described.

How to Dress a Beef.

A fat beef may always be prepared for domestic use at this season. To sell a cow or steer for $15, and pay 15 cents a pound for beef, is not a money-making business, yet this is done very frequently. The value of the hide, tallow, heart, head, and liver of a beef will amount to a large portion of the price that can be usually obtained in country places for an aged cow or young steer, and if well fed, the old cow will often produce as good beef or better than the steer. Farmers would oftener consume their own animals, instead of selling them, were they not deterred by the want of knowledge of the manner of slaughtering and dressing a beef animal. There is a way of slaughtering that is not *butchering*, and it may be done painlessly by taking the right course. The barn floor or a clean grass plot in a convenient spot will be a suitable place for the work. To fasten the animal, put a strong rope around the horns, and secure the head in such a way that it can not be moved to any great distance, and in a position to allow a direct blow to be easily given. The eyes may be blinded by tying a cloth around the head so that there will be no dodging to avoid the stroke. The place for the stunning blow is the center of the forehead, between the eyes and a little above them. The right place is shown at *a*, fig. 1. The best method is to fire a ball from a rifle in the exact spot, and this may be done safely when the animal is blinded, by holding the weapon near to the head, so that a miss can not be made; otherwise a blow with the back of an axe made when the striker is on the right side of the animal, and the head is fastened down near the ground, will be equally effective. So soon as the animal falls, the throat is divided with a cut from a long, sharp knife; no jack-knife should be used, but a long, deep, sweeping stroke which reaches to the vertebræ as the head is held back. This divides all the blood vessels, and death is almost instantaneous, but at any rate painless. When the carcass has been freed from blood, it should be turned on its back, and the skin divided from the throat up the brisket, along the belly to the legs, and up the legs to the knees, where the joints should be severed, taking care, however, to cut off the hind feet below the hock joints about 2 or 3 inches. The skin is then stripped from the legs and belly, and

Fig. 1.—THE PROPER PLACE TO STRIKE.

as near to the back as may be by turning the carcass. The belly is then opened, and the intestines taken out; the brisket is cut through, and the lungs and gullet removed. It is now necessary to raise the carcass. This is done on the rack (see fig. 2,) the forward legs of which are placed on each side of the carcass, and the gambrels are placed upon the hooks shown in fig. 2. The legs of the rack are then raised as far as possible, and as the carcass is lifted, the hinder leg is brought up to hold what is gained until the carcass is clear of the ground; the hide is then wholly removed, the carcass washed and scraped from anything adhering, and then divided down through the back-bone, leaving the sides hanging. As a matter of safety from dogs or other dishonest animals, it is well to have the work done in the barn, laying down a quantity of straw to protect the floor, if thought necessary, as the beef should remain at least 12 hours to cool and set.

Small Artificial Fish-Ponds.—"T. R. C.," of Keyser, W. Va., informs us that he has "about an acre of low land, nearly water proof, with a spring near by yielding water enough to fill an inch pipe; and wants to know if it is available for a fish-pond, and what *quantity* of fish could be raised in such a pond." He labors under a very common

Fig. 2.—RACK FOR A CARCASS OF BEEF.

impression, judging by the number of letters we receive, that a big business in fish culture may be done with a very little water. Fish culture is doing wonders in re-stocking our larger streams and ponds, but it has not yet enabled the most skillful pisciculturist to grow fish on dry land. Seth Green,

in the first enthusiasm of his discovery of the shad-hatching box, prophesied that he could make shad so plenty in the Connecticut at Hadley Falls, that he could drive a horse and buggy across the river upon the backs of the shad! But then he had all the water in the river and in the ocean to work with, and a fertile imagination. Trout can not live through the summer in water much above 60° F. temperature, and a pond of an acre supplied by an inch pipe of spring water would probably reach 80° in the summer heats. Trout can be hatched in a very small stream of spring water. The difficulty lies in keeping them through the hot weather. The pond in question is quite too small for black bass. They must have lively running water, large mill-streams or ponds of twenty acres or more area, to make the raising of them a paying business. As a rule, it will only pay to stock rivers and ponds, especially those with hard bottom, with black bass.

Hints and Helps for Farmers.

TO FASTEN A PIG IN A WAGON OR SLED.—When it is desired to carry a pig in a wagon box, the animal may be secured in the manner described by

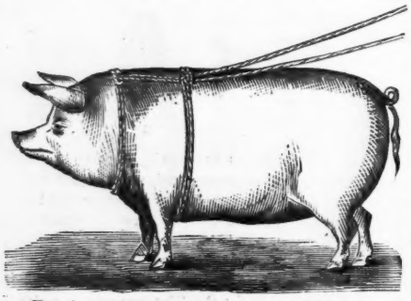


Fig. 1.—MANNER OF ARRANGING THE ROPE.

a correspondent in Kansas, as follows: Make a loop in a doubled rope, and put it around the throat; carry the rope over the head, and fasten it around the body behind the fore-legs, leaving the two ends free over the shoulders. The pig being lifted into the wagon is held down by fastening the ends of the rope in any safe manner, so that the pig can not jump over the sides of the box, and is compelled to stay in the middle. The method of arranging the rope is shown at figure 1. If the pig is made to lie down, it can not rise when fastened, and there is no danger of it hurting itself.

A PORTABLE FODDER RACK.—A friend from Indiana sends a sketch of a portable hay and fodder rack for feeding cattle and sheep while the weather is suitable for out-door feeding, which can easily be moved from place to place. The size can be varied to suit the choice of the builder. The one here represented is 20 feet long, 3½ feet wide at bottom, and 4½ feet wide at top, and 5 feet high. This size will hold a small wagon-load of hay. The

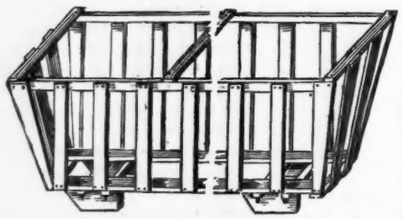


Fig. 2.—THE FODDER RACK.

runners upon which the rack rests are 3 feet long, 3½ inches thick, and are pinned fast to the sills with 1-inch wooden pins. The sills are 2 by 5-inch stuff, and placed broadside upon the runners. The top rails are 2 by 4-inch, and set edgewise. The cross pieces are 2 by 4-inch, and are bolted to the sills and top rails by ½-inch bolts. The siding is 1 by 6-inch plank, 5 feet long, and is nailed to the sills and top rails. The sills and rails should be of hard-wood, with boards placed in the bottom for a floor, shown open in the engraving.

A LEAF RAKE.—Leaves are valuable litter. If used for no other purpose, they should be gathered and kept as bedding for farrowing sows or for lambing ewes. There is no softer, warmer, dryer, or safer bed for young animals than leaves. They

Fig. 3.—A LEAF RAKE.

are also valuable for manurial purposes, and where a sufficient supply can be obtained, the straw may be used for fodder. To gather the leaves readily, a long-headed rake may be used, and as the ground is rough the rake should be made strong. A hickory stick 1½-inch thick will serve as a handle; the head may be of pine or willow if it is strengthened with bolts, as shown at figure 3. The teeth should be of hickory or white oak. Unless the teeth are thick and strong, and the head strengthened by bolts, either or both are liable to break when used.

A BAG HOLDER.—To enable one man to do the work previously done by two, may be as useful as to cause two blades of grass to grow where one grew before. A labor-saving contrivance of this kind is shown at figure 4. It is a bag holder, and consists of a platform resting upon rounded and smooth runners, and having a standard at the rear. This is notched as shown in the engraving, and has a forked arm pivoted by a bolt at the top. This arm has a cross-piece about the middle, upon which are two small hooks turned backwards, and a brace which fits into a rack on the standard. When the holder is not in use, the arm is let down; while in use, it is supported by the brace. The bag is held by the hooks and by the edge being turned over the ends of the arm.

Fig. 4.—A BAG HOLDER.

A Floating Bridge, or Pontoon.

A "subscriber," New Haven, Conn., has a farm, through which runs a river 200 feet in width; to be

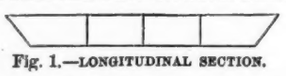


Fig. 1.—LONGITUDINAL SECTION.

able to cross this river, will save a roundabout journey of two miles over a hilly road; he wants a floating bridge to enable him to save this expensive journey. This is a case typical of many, and may be remedied by the small expense of building a pontoon bridge. This may be made as follows. Procure 1½-inch spruce or pine planks 12 feet long; of these construct a pontoon 24 feet long, and 12 feet wide, laying the planks crosswise. The longitudinal section will be in the form shown at figure 1. The interior is shown at figure 2. This is strengthened by a longitudinal bed-piece through the center, to which the planks are fastened with iron screw bolts. Three pairs of knees, (fig. 3), will serve to strengthen the sides, and as a place to which to bolt the side planks. The joints are made as tight as possible, by calking with hemp, and the outside and inside are thoroughly coated with pitch. The vessel is divided by three partitions, into four

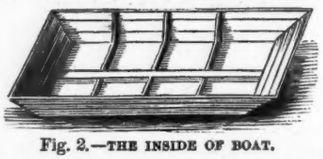


Fig. 2.—THE INSIDE OF BOAT.

parts, which lessen the risk of leakage. A hole is cut through the deck into each division, through which a hand-pump may be inserted, when it is necessary to clear out the water. The deck is supported by a middle partition over the center bed-piece. A pair of posts should be fixed on each side, made so as to carry a tie-bar, to which the horses should be well secured. The wagon should be securely blocked before and behind, lest the horse may at any time become restive. The bridge may be drawn over by means of a windlass, fixed upon it, and upon which a few turns of a rope may be taken; this rope will pass through a pulley attached to a post on each bank of the river. A pontoon of this size, two feet deep, would have a carrying capacity of over 12 tons, and one a foot deep, would support 8 tons, including its own weight, which would be about a ton and a half. It would in fact support a team and loaded wagon even when the boat was filled with water, although it should never be put to such an extremity.

Fig. 3.

The Benefits of Sugar-Beet Culture.

We have frequently referred to the advantages promised by the culture of sugar beets for the manufacture of sugar. But a great industry does not grow, blossom, and become fruitful in a year, or in a few years. Yet its final success is hastened by the ease with which the raw material can be procured. If sugar beets were now grown as plentifully as potatoes, sugar factories would be as numerous as starch factories. It was the abundant supply of potatoes that temped the starch manufacturers to build their factories, and offer a steady market for the farmers' produce. Let sugar beets once become a staple product of our farms, and the only obstacle to the establishment of a vast business in sugar making would be removed. Sugar beets can be made profitable for feeding, and not only so, but the effect of the culture upon our system of agriculture can not fail to be so advantageous as to invite farmers to adopt it, if but for its own value alone. Root culture implies good farming, for with poor farming one can not grow roots. Roots may be grown upon poor land, by using the proper fertilizers and methods of culture, and there is no better method than this of working up the soil to a good condition. For if one grows a quantity of roots, these must be fed, and they can not be fed without making a large quantity of manure; further, they can not be fed with the greatest profit without the addition of some concentrated food, and that involves rich as well as abundant manure. Besides, in using roots and meal as a daily ration for cattle or sheep, it is found that straw will be consumed with avidity; in fact, it makes an excellent substitute for hay, and uses up profitably a waste product that is generally used only for litter. An idea is prevalent that root culture is costly. It may be at first under certain circumstances; as upon a poor soil and one foul with weeds, and especially under careless management. It may be made costly when, by neglect at a critical time, the whole crop is lost by being buried in weeds. But that is not the fault of the crop, but of the management. The seed for an acre of ground costs $6; that is, for Sugar Beets, which may be grown closer than Mangels; 12 lbs. of seed being needed for an acre; the cost of cultivation need be no more than for a crop of potatoes. The yield will be of considerably greater value than that of potatoes, reaching, under favorable circumstances, 800 bushels per acre, or 25 tons. For feeding, the sugar-beet is worth more than double the quantity of mangels, as it contains more than twice as much solid matter, so that 25 tons per acre is equivalent to as large a crop of the grosser mangels, as can be expected under the most favorable conditions. The direct profit is then attractive enough to induce farmers to raise Sugar Beets merely for feeding purposes, while the indirect profit arising from the improved condition of the soil, gives a respectable return in addition. When the culture of Sugar Beets then becomes general, there will doubtless be no lack of capital to work them into sugar, any more than there would be to operate a silver or a gold mine that might be discovered on a man's farm. It is the

want of material that has kept back enterprise in this line; the men and the money are always ready to develop any staple and profitable raw material.

A Weighing Box and Attachments.

Mr. "R. L. M.," Washington, Pa., sends us sketches of a method of home weighing, which he finds very convenient and describes as follows: A farmer, with a few hogs or sheep to sell, often feels at a loss for proper scales with which to weigh them, in order that he may tell the buyer the exact weight of the lot, or, if to be weighed elsewhere, for his own satisfaction. I send you a rough sketch of a weighing box that may be used with a common steelyard beam of not more than 350 lbs. capacity. We have been using one on the farm for several years, and find it very convenient, as it has many times saved us the trouble of driving stock 3 or 4 miles to large scales that may not be as accurate. The sides of the box are 3 by 5 feet, and may be made of pine or poplar strips of 3 inches wide and ¾ inch thick; the gate, *A*, is of the same material. The corner posts should be of oak

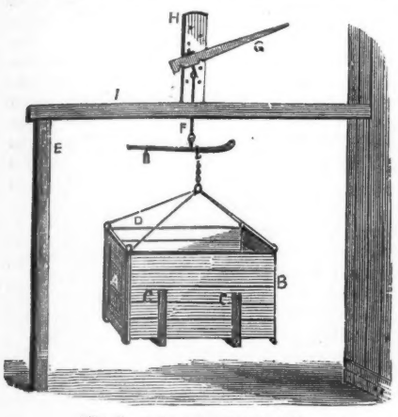


Fig. 1.—THE WEIGHING BOX.

(as it holds the nails better), 2 by 3 inches and 3 feet long. The floor is fastened in by notching a 1 by 2-inch piece on the sides of the posts, *B*, at the lower end, and nailing or screwing tight. Strips, *C*, *C*, are nailed to the sides, and half-inch holes bored in them at the dots, into which stays are fastened to keep the bottom from springing down or breaking through. The floor should be made of ¾-inch oak or ¾-inch pine boards. The bails, *D*, are made of ½-inch iron rod, 7 feet long, bent in middle and put through holes in the top of posts *B*, and turned up a little to keep them in. These bails may be fastened with a heavy iron ring at the top,

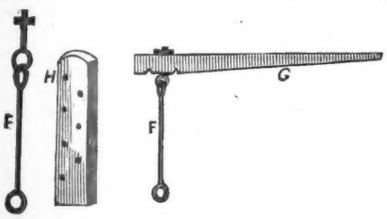


Fig. 2. Fig. 3.—LEVER AND ATTACHMENT.

which serves to hook the beam in and keeps the bails from straggling. A place must be provided to hang the box and means for lifting it, beam and all, after the stock is put in, as it is hardly possible to get hogs or sheep to go into a swinging box. The way we lift ours is by a lever and pins, which works very well; one man can lift 1,000 lbs. with ease by this means. If there is no place more convenient, plant the post *E* near some building, 8 feet above the ground and the same distance from the building, insert the end of the joist *I* into the building, and mortise it upon the post. The joist should be 4 by 6 inches, as a hole for the rod *F* has to be made in it. To make the post *H*, nail a 2½ feet by 6 inch board on each side of the joist *I*, then cut two boards 6 inches shorter, to sit on top of the joist inside the others. Then place a 2 by 2-inch block between the boards and the top, and nail all together. This leaves a 2-inch space in which the lever works. The lever *G* should be made of 2 by 3½-inch oak or hickory, and as long as desired. Then get a ½-inch rod, 2½ feet long, made as shown in figure 2, put it up through a hole in joist *I*, and fasten into the lever with the staple and bur, as shown at figure 3. In the post *H*, 3 inches from the bottom and 1 inch from the edge, bore a ½-inch hole clear through, then 3 inches higher another, and so on, as shown by dots at figure 3. Get two iron pins to fit these holes easily; then, by raising and lowering the lever by means of the long arm, and moving the pins, the load is raised. Make notches in lever *G* to keep the lever from slipping. A lumber wagon may be so placed that the lever may be worked by a man standing in it, a step-ladder, or some other object, may be used, if found more convenient.

A Farm Cart.

While there are different kinds of farm carts, we have not yet hit upon *the* cart—*i. e.*, one that meets with general approbation. The writer, having much work for a cart, has designed one which is intended to do all the work of the farm more easily than a wagon or any other cart. For the carriage of manure, of fodder-corn, green clover, or other soiling fodder, for hauling roots and such work, a cart is needed with a low body, that can be turned around in its own length to back, or even turn, in a manure cellar or on a barn floor. All this can be done with this cart, and when hay, straw, or green fodder is to be loaded, the fore and hind racks may be put on, and greatly increase its capacity. With 4-inch wheels, this cart can be drawn, when loaded, over plowed ground or muddy roads, and scarcely sink below the surface. The cart body consists of a frame 8 feet long, 3½ feet wide, and 14 inches deep, thus holding, when heaped, about a cubic yard and a half of manure, or as near as possible one ton. The frame is made of 4 by 3 timber for the top, and 2 by 3 for the bottom, sides, and cross-bars, and is covered with bass-wood or willow boards on the bottom, the front, and the sides near the wheels. The rear end is closed when desired by a sliding tail-board. The axles are fixed to the frame, as shown at figure 1, and pass through the middle side posts under the upper side bar and a wide iron strap, which embraces the top of the frame, and passes under the bottom, as shown in the engraving, being screwed by bolts to the timbers. The wheel being the same size as an ordinary wagon wheel, viz.: 4 feet; this brings the bottom of the cart body to within one foot of the ground, and in loading, the lift is only a little more than two feet from the ground. The saving of labor and the effect of work are thus greatly increased, a man being able to load twice as much, with the same force, into a cart of this kind, as into a wagon box four feet high. The rear end of the cart may be provided with a roller, fitted into the rear posts, which serves to ease the unloading of the cart when it is tipped, the rear end then easily moving over the ground as the cart is drawn over the field when unloading manure. But as the cart body is so low there will rarely be any need for tipping the cart. To enlarge its capacity, there are

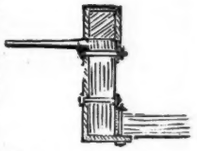


Fig.1. AXLE FASTENING.

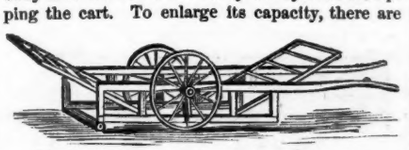


Fig. 2.—THE CART WITH MOVABLE RACKS.

movable racks fitted before and behind, as shown at figure 2. The cost of two of these carts is not more than that of a wagon, and may be less, if economy is exercised in making them. The shafts may be bolted to the sides and so arranged that the cart can be tipped over when the load requires it.

The Clover-Root Borer—(*Hylesinus trifolii*).

The importance of Professor Riley's work during his brief stay with the U. S. Department of Agriculture, is evident from his Report for the year 1878, so full of valuable information for the farmer. A new enemy to the Clover crop is figured and described by him, and to whom we are indebted for the accompanying engraving. The insect is a small beetle, and does most of its mischief, while in the grub or larva state, by boring into, and eating out, the center of the larger roots of the Clover-plant, though the flower-stalks do not escape when the plants are badly infested. In Central New York the insect was so abundant that the plants were entirely eaten off, and of course the crop proved a failure. The beetle is not new to science, having been known in Europe for many years, where it has been thoroughly studied and described, the accounts of the insect given abroad are confirmed by Professor Riley's recent investigations here.

The insect is shown in the engraving in all three stages, larva (*b*), pupa (*c*), and adult or perfect insect (*d*), all of which can be found upon the Clover at any time during the growing season. "The insect," says Prof. Riley, "hibernates in any of these three stages, and continues propagating as soon as spring opens, the beetles issuing from the ground and pairing during the early spring months. The female then instinctively bores into the crown of the root, eating a pretty large cavity, wherein she deposits from four to six pale, whitish, elliptical eggs." The galleries made by the grub are shown at *a*, *a*, *a*, at the ends of which the larvæ assume the inactive pupa state. It is during the second year of the Clover-crop that the Root-borer is most injurious, and this suggests the only remedy which has as yet been found, namely: plowing under the Clover after the first year, in all localities where the pest is observed. If the insect proves as destructive, generally, as it has in some localities, a total withholding of the Clover-crop for a few years may be found necessary. Professor Riley has observed certain animal parasites which prey upon the *Hylesinus*, and they may in time rid us of this pest.

CLOVER-ROOT BORER.

Branding Cattle.—Tanners complain, and with reason, of the damage caused by the reckless use of the branding iron upon Western cattle. Branding may be a necessary cruelty, but that it is a painful operation cannot be doubted, as the branding irons must penetrate to the flesh, to make an indelible mark. But leaving out of the question the humane aspect of the case, and regarding only the practical question of the danger to the hide, it might be suggested that some other spot than the flank or broadside might be chosen as the place for the brand. This is the most valuable part of the hide, and damage there, seriously reduces the value of the leather. The Sandwich Islands furnish a few hides for the American market, and the brand upon these is placed on the leg above the hock. This does not materially injure the hide, and a brand there, will be as plainly seen by a cow-boy at a "round-up," as one on the flank. Perhaps some other method of marking cattle might be invented, that would avoid the necessity for the painful branding. There are seven colors that cannot be mistaken, and it might be a practical innovation to mark cattle with these, as sheep are marked upon the wool, choosing different parts of the body, as

well as different combinations of colors, and shapes of markings, etc., for the cattle of different owners.

Paddock and Hovel for Horses or Mare and Foal.

Objections are made to sending horses from the city to pasture in the country, on account of the exposure to the weather in the open field. This may be easily avoided by the construction of cheap temporary hovels in the pasture, in which the animals may find shelter, and where a trough may be provided for the regular rations of feed, which should always be furnished. In the majority of cases, it is not the exposure that does the mischief, but the actual want of food; for a horse that has been fed liberally upon grain for months can not consume a sufficient quantity of watery grass to support the system without injury to the digestive organs; and the impossibility of assimulating sufficient nutriment is the leading cause of the loss of condition. But if with the grass a moderate quantity of concentrated food is supplied, healthful nutrition goes on, and the appetite, stimulated by the unwonted freedom and exercise, is healthfully satisfied. Nevertheless, the coat softened and weakened by constant blanketing, and the warm air of a city stable, can not resist exposure to the sun's scorching heat and the chilly nights which rapidly alternate, and shelter is absolutely necessary. A hovel may be constructed of poles and brush from the woods, or of rough boards. A ground floor 10 feet by 12 is sufficient. If small poles and brush, or coarse grass, are used, the poles may be set up loosely in the ground in the form given at figure 1, in double rows, leaving a door space on the south side. The rows are 6 inches apart, and the space between them is filled with fine brush and small branches for a foot in depth. The opposite poles are tied together here and there with tarred twine, and the brush is beaten down solidly, after which another layer of a foot of brush is laid between the poles and treated as before; in this way the walls are finished up to a safe hight, 8 feet being the least, so as to avoid danger of the horse striking the head as he goes in or out. The

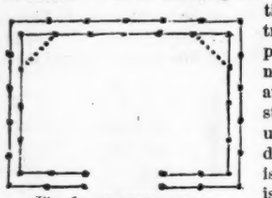


Fig. 1.—GROUND PLAN.

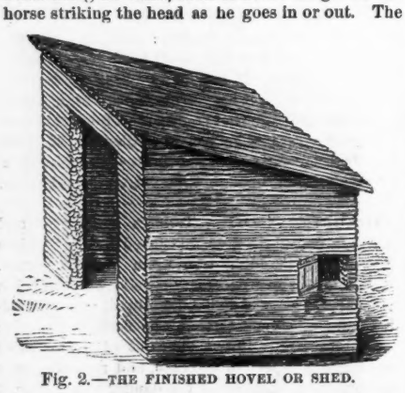


Fig. 2.—THE FINISHED HOVEL OR SHED.

sides of the doorway are carefully smoothed off, only the fine tips of the brush being placed there to avoid any dangerous projections. A feed trough may be placed in each corner, and one hovel may serve for two horses or a mare and foal. The roof should be rain-proof, and if thatched with brush and straw, or hay, the pitch should be considerable. Small openings are made above the boxes for the feed, as shown at figure 2, in which a completed hovel is represented. For brood mares and foals running in pasture, such a hovel will be found very useful, and for valuable calves also which require shelter when running in fields. A few of these hovels will be found useful upon nearly every farm.

Effects of Dew Upon Pastures.—The heavy dews which are usual in late summer and early fall, and the light hoar frosts which occur as the cooler weather arrives, are unwholesome to cattle and sheep. It may be that the well known effect of dew in this direction gave rise to the old fashioned idea that dew was in itself injurious, and caused various diseases. There is nothing in the character of the dew itself which is hurtful, but it is the filling of the stomach with wet herbage that is unwholesome. The stomach becomes distended with the products of the decomposition of the wet mass, and in time the animals suffer. Danger may be avoided by keeping the stock, especially young animals, from the grass until the dew has dried off. The danger is not so serious until the shorter days and longer nights of the fall cause an excessive deposition of dew, when care should be exercised.

Fire-Proof Farm Buildings.

Farm buildings are so seldom destroyed by fire that they can be insured for a rate of 25 cents per $100 a year on a three years' policy, yet they are sometimes burned and heavy losses are incurred. Safety is not only a very valuable but a very comfortable condition, and it is worth a good deal to feel, as well as to be, safe. A wooden building is a constant risk, and is subject to danger not only from within but from without. An iron building is one of the safest, it being equal in this respect to a brick building with a slate roof; while it is much cheaper and more easily constructed. Counting the low cost of erecting a building with iron walls and roof, although the iron costs about twice as much as boards, the saving of time and labor will bring the total expense nearly equal, and counting the great saving in the cost of the roof it is doubtful if the iron covering is not altogether cheaper

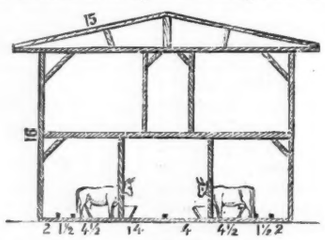


Fig. 1.—PLAN OF STABLE.

than board walls and shingles. For instance, a cow-stable, and hay and fodder shed above, built on the plan shown in figure 1, 16 feet high to the eaves, and 24 feet wide, would cost for covering $3.41 for each foot in length, leaving the cost of the frame to be estimated. This might amount to $1 per foot for material, and the framing might cost $1 per foot additional. As the iron covering is made in large sheets 8 feet long by 28 inches wide, it is rapidly put on, and as any man can apply it the owner himself could work at it and save the cost of a carpenter. A barn 100 feet long, 24 feet wide, and 16 feet high, would therefore cost, complete, with windows and doors, not over $600, and the outer covering would be wind, water, and fire-proof, and already painted inside and out. There can, therefore, be no cheaper building material than this, and as it is indestructible and can not rot, if properly cared for, it would seem to be cheaper than any other material whatever. The iron sheathing is made either plain or corrugated. A kind that has been recently introduced for roofing or siding, that is made in sheets 96 by 28 inches, has lapped edges, as shown in figure 2, which re-

Fig. 2.—METHOD OF FASTENING.

presents a section of a sheet. In fastening these to a wall or roof, one curved edge is inserted in the other, as shown at *a*, figure 2. The first sheet is nailed to the studs, as shown in the engraving, and the next sheet is hooked to it. After the sheets are fastened the joints are flattened out with a mallet and made water-tight, and practically air-tight, as no wind can penetrate at the joints. A building thus covered is much warmer than a wooden one in the winter, and besides, is more quickly warmed

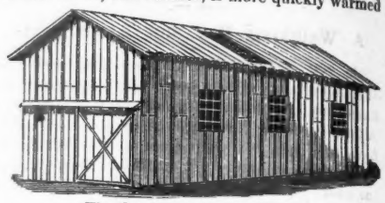


Fig. 3.—BUILDING COMPLETE.

by the sun's rays than a wooden one can be. The style of building constructed of this material is shown in figure 3, which represents the corrugated siding and roofing; this, however, is more costly than the flat siding, and the joints can not be made so tight. The weight of this iron building material is less than that of lumber one inch thick, being only 90 lbs. to the 100 feet, hence a much lighter frame may be used, as the roof not only requires no sheathing or roof lath, but the covering is less than one-third the weight of boards. On the whole, this seems to be a very desirable material for cow or horse stables, hay sheds, pig-pens, hay barracks, poultry houses, and even barns. It is certain that much money is wasted in building the present style of high barns with heavy timbers, and when ground space is cheap a low, light building is equally convenient in use, and costs much less to build it.

Poultry Farming.

No other business connected with agicultural pursuits, seems so attractive as poultry farming. Even those who fail in the business, and retire from it, aver that they are certain they could succeed in a new trial; their mistakes having taught them how to succeed in future. This may be true, but it is noteworthy that they do not try again. Still we have almost daily inquiries, especially from young men, as to the possibility of making a living from poultry; to all of which we are forced to give unsatisfactory replies. The profit in poultry lies in keeping small flocks. From such it is easy to make an income of $1 from each hen annually, even after buying food. But no account must be taken of the waste and damage done to crops, nor of the value of the free foraging done by the fowls; and these amount to a considerable sum if figured up closely. Then accidents are to be taken account of. For instance: the writer once kept a flock of 30 Light Brahma hens, which did well for three years, and paid excellently; but the unfortunate introduction of a cockerel from a distant yard brought a prevalent disease, of which every bird died, leaving one brood of motherless chicks the sole survivors. This may be taken as an example of the uncertainties of the business, which are increased in proportion as the flock is larger. A flock may be kept as an adjunct to a more important business, and to take up spare time, and in that case, barring accident, may be made profitable. But it may be taken as a certainty that not more than one person in a hundred who have tried it, has ever succeeded in keeping a flock of several hundred fowls in profitable condition. If one thinks he is born to succeed, let him try; he may possibly become a shining example to show others the way to success.

Packing Butter for Winter.—There are a few requisites for packing butter safely for winter use. The butter must be good; the salt must be pure; the packages must be clean and air-tight, and perfectly well closed; and the place of storage must be cool, clean, airy, free from mouldiness and not too dry. A clean, well-aired cellar with cemented floor, and in which vegetables are not stored, is as good a place as any for the storage of butter for winter use. Pure air is very important.

Cross between Jersey and Angus.—A remarkably good-looking young cow was exhibited at the recent N. J. State Fair at Waverley. It was a cross between a Polled Galloway bull, and a Jersey cow, and in color was jet black, with a few

white patches. The coat was glossy, fine and short; the head was horniess, fine, and had the Jersey features; the milking qualities, so far as could be ascertained by the appearance of the cow, promised to be good, and on the whole, the neat, small figure of the animal, nearly approaching to a well-bred Britanny cow, was prepossessing and attractive. It is doubtless a desirable cross, and it would be interesting if some one having the opportunity of making it, would test it to a certain issue. A polled cow is highly desirable for the dairy, and a polled race, with all the good points of the Jerseys, and the Galloways combined, would be a valuable acquisition.

An Experiment With Canada Ashes.

The use of leached ashes, brought mainly from Canada, is largely increasing upon our shore farms. They are shipped from Oswego and other lake ports, in canal boats, brought down through the canals and the Hudson River, and towed to the ports on Long Island and in Connecticut, where they are sold to farmers, who carry the ashes in their own teams to the fields where they are to be used. These ashes are not very thoroughly leached, and contain a considerable quantity of potash, as well as other kinds of plant food. They have long been used to great advantage in the onion growing districts, and more recently their use has extended to all farm crops. Last year, William R. Fish, of Mystic Bridge, purchased about 1,500 bushels, and used them upon his farm. They were put upon his grass lands and upon other crops, with very satisfactory results. They were spread upon his meadows, at the rate of 100 bushels to the acre. The cost of the ashes was seventeen cents a bushel, making seventeen dollars an acre for the manure. The increased yield of hay was at least one ton to the acre, doubling his crop wherever the ashes were used. He thinks the increase in the hay will pay one half the cost of the fertilizer the first season. It is well known that the effect of ashes is visible for a long time upon grass lands, some say for twelve or fourteen years. Meadows can be kept much longer in grass where the ashes are used as a top dressing. The ashes were also applied to corn and potato crops, with equally satisfactory results. The best evidence of the value of this fertilizer, is the fact that the farmers who use them are making larger investments in them every year. They are most economically applied to farms near sea ports and river landings, where they can be taken directly from the canal boat. They are not a concentrated manure, and cannot be carried long distances by rail with profit. CONNECTICUT.

Well Boring Tools, and How to Use Them.

In many localities flowing wells may be procured by boring to a moderate depth. A flowing well is worth a large sum of money, merely estimating its value by the labor it saves in drawing the water, and distributing it to stock. To consider that $50 may be thus yearly saved, is not too high an estimate. This represents a sum of $1000, with interest at 5 per cent, and $500 at 10 per cent. A complete set of tools can be procured for less than the latter sum, with which a well can be bored 250 feet deep, and the tools will be still on hand, for sinking other wells in different places on the farm, or for neighbors, by which a large profit can be made; the economy in this is very obvious. Flowing or Artesian wells—a true Artesian well is not simply a deep well, but a flowing one—can generally be procured in low ground, between low hills underlaid with clay, which rests upon rock or gravel. The water sinking in the soil upon the high ground, finds its way under the clay upon the rock, and through the gravel, and escapes in the lower ground in springs. Where springs abound, one can almost certainly procure a well in which the water will rise and flow over the top, so that it may be led in pipes into yards or buildings. Where such wells are not likely to be found, as in regions underlaid with sand or gravel, it is still an advantage to have a deep well, on account of the permanent supply, and the purity of the water; especially as there is no lack of pumps of the best character, made expressly to raise water from great depths with much ease, and force it wherever it may be required. Deep wells are made by boring instruments or augers, which cut out the soil, and hold it while it is drawn up, and disposed of. At figs. 1 and 2 is shown an auger for boring in clay, with front and side views. The edge is of steel, sharp and chisel-shaped, and so bevelled, that as it is turned it cuts down into the clay, and takes out a piece the shape of the pod of the auger. When this is filled, which needs eight full turns, it is drawn up by means of a windlass, and the contents discharged. At figure 3 is shown the auger used where the ground is filled with loose stones. The augers are usually from 6 to 30 inches in diameter, the deep wells being 6 or 8 inches, and the shallower ones 24 to 30 inches in diameter. Forty or fifty feet in depth can thus be bored in a day, where boulders are not met with. The larger wells are protected by wooden curbs, fig. 4, made of boards, or by cement tiles, which are settled down as the boring goes on below them, and which are a little larger than the auger, so that it can work inside of them. The augers are fitted to a square iron rod by sockets and keys, and the rod is turned by means of heavy wrenches with long handles, turned either by two men or one horse, or by horse-power machines, with suitable gearing. A three-legged derrick with a geared wheel and axle, is provided for hoisting up the filled augers, and letting them down into the well again. In this way the boring goes on through water or quicksand, or any other material, until a sufficient depth is reached.

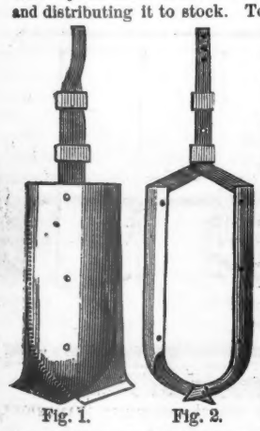


Fig. 1. Fig. 2.

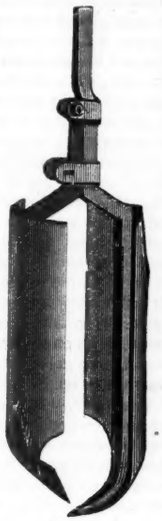


Fig. 3.

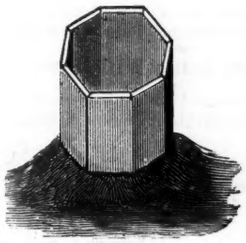


Fig. 4.—WOODEN WELL CURB.

Fig. 5.

The narrow wells are usually protected by pipes of sheet iron, figure 5; or in case the pipe needs to be driven down, a strong wrought iron lap-welded pipe with flush screw joints, figure 10, is used. This latter pipe is required for deep or flowing wells, when there is much pressure of water.

When rock is met with, a different method is required. Soft rock can be bored with steel-pointed augers made for the purpose, but drills are commonly used in all kinds of rock. Drills are of different shapes. The wedge-bit, with a curved edge (fig. 6), is most frequently used, when the rock is hard; in softer rock the Z shaped bit (fig. 7) is used, which cuts more quickly. In rock of unequal hardness, or in soft rock, with inexperienced persons, the holes will run to one side or another, or become oval instead of round; in these cases a reamer, figure 8, is used to trim and straighten the hole, so that the drills may be able to work, as a straight drill can not work in a crooked hole. The drill is screwed by means of a powerful wrench into the drilling-bar, which is a square or round bar of iron, or wrought iron gas-pipe, 1¼-inch in diameter, and the top of the bar is furnished with an eye and ring by which the hoisting rope is fastened to it (fig. 9). The drill is not twisted, but is jumped, that is, raised and let fall several feet, and is turned a quarter round at each fall, so as to cut the rock out in pieces at each blow. A hand-machine for raising and dropping the drill is shown at figure 12, and a power machine for horses or steam-engine at figure 13. From 40 to 60 strokes a minute are made, and the drill is able to cut a 6-inch hole from 6 to 15 feet a day, according to the hardness of the rock. The chippings of the rock are made into mud by pouring water into the hole while the drill is at work, as the drill works more easily and the borings are more readily removed. A sand pump is used to remove the waste. This is an iron tube, provided with a valve at the bottom, figure 11. It is let down into the hole, and is churned up and down for a short time, so as to stir up the mud, and is then raised; the mud and fragments of rock remaining in the tube. So the work proceeds, a few feet at a time, until a sufficient supply of water is reached, when the well is tubed by screwing sections of the tube together and putting them down to the rock through the clay or earth, if this has not been previously done, driving them down to make a close joint with the rock, and fitting the surface pipes to the upper length of tube. It is in this way that all the oil wells from which our supply of petroleum is gathered, and all the deep, or shallow, Artesian wells that are now in use, have been bored, although the process is now much

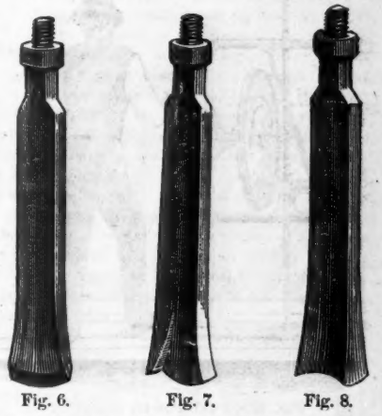


Fig. 6. Fig. 7. Fig. 8.

Fig. 9. Fig. 10. Fig. 11.

facilitated by the use of the best machinery. It is not to be supposed that the work is always done as easily as it can be described. The tools sometimes break, and portions of the drills remain in the well;

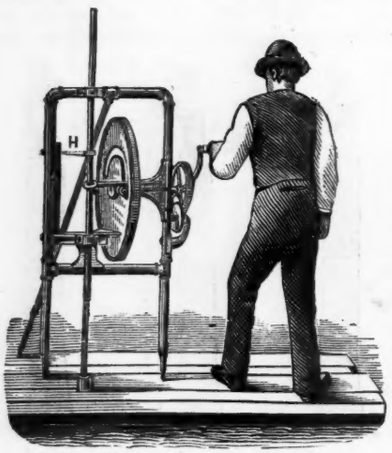


Fig. 12.—HAND-POWER MACHINE.

but the perfection of well-sinking machinery is such that iron or steel fingers can be sent down and made to pick up the fallen obstacles, or hard steel drills are used to cut them in pieces, so that they can be brought up in the sand pump; besides, the cost of sinking is largely reduced by means of the excellent tools which are at present in use.

Cultivated Wheat.

BY A. B. TRAVIS, BRANDON, MICH.

Twenty-nine years ago the present autumn, I broke up a gravelly field, and cropped it in my usual way to wheat, corn, and oats, or barley, and then seeded to Clover and Timothy, and mowed and pastured it two years, and then with the same rotation to the last five years in which I took off two crops of wheat; one of them was stubbled in wheat after wheat and seeded to Clover and Timothy, which gave two crops of hay. When the last crop of hay of 1878 was taken off, I plowed the land in the last days of August, planted on the 16th of September, and hoed it with my Horse Hoe once in the fall and twice in the spring. I used a 7-inch space drill, closing up each alternate hoe, making 14-inch space on part, and the rest was put in belts by twisting the drag bars of the drill to bring the points of two hoes near together, and giving more room for spreading of seed, leaving 10 to 11 inches in space for cultivation. I prefer this belting, and

Fig. 13.—MACHINE FOR STEAM-POWER.

would like about 12 inches for the hoe. I tried different quantities of seed, from two to six pecks per acre, and found that three or four pecks was the best. I had three to six pecks of seed per acre standing side by side with equal chances, and the three pecks was fully 50 per cent better than where the six pecks were used. Too much seed weakens the crop, and if insects attack it there is not strength to support the insects, and the wheat must perish or drop down before harvest, while the thin sowing, having more space and strength by hoeing, branched out more, and the branches that come out after the insect was done working are healthy. How easy it would be for farmers knowing the benefit of hoeing their wheat and oats, when they are planting seed in the fall and spring, to close each alternate drill on about one or two acres if no more, and hoe a part with a hand hoe, and watch the results in the heads next harvest; but almost all have been brought up in the old fashion, believing that nothing needs cultivation unless it stands in the garden or corn field.—[Mr. Travis sent with the article a sheaf of wheat grown on the field referred to; it has fine straw and extra good grain, many of the heads containing over 60 seeds. It is an encouraging symptom of enterprise on the part of farmers, who are apt to be charged undeservedly with being too slow to adopt improved methods, that very numerous experiments are being made in cultivating wheat. The reasonableness of the practice, and its constant use with other crops, are inducements for its adoption in wheat culture, and wherever it has been tested it has resulted in a large increase of the yield. We confidently expect that before long every field of wheat will be hoed as corn and potatoes are, and every facility given to the crop to do its best in production. The average yield of wheat should be at least twice as much as it is now, and the only way in which the increase can be made is by the use of improved methods of culture, among which hoeing is found to be one of the simplest and most effective.—ED.]

Fastening Cattle With Bows.

Everything connected with this method of fastening cattle in the stables, by means of Bows, is so

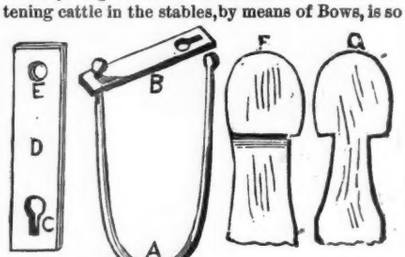


Fig. 1.—BOW AND CLASP.

simple in construction, that it is within the reach of every farmer. It requires no outlay, as each one can make all the parts for himself. The bow (fig. 1) passes around the animal's neck in the same manner as an ox-bow, and is made of a good piece of hickory, by bending a strip of the right length, and ¾-inch in diameter, into the bow form. After the bow-piece, *A*, is made of the right size and shape, with one end left with a knob, to prevent the clasp from slipping off, and the other cut as shown in front view in fig. 1, *G*, and side view at *F*, to fit into the slot, in the clasp, it is carefully bent until its ends are brought together, fastened, and left so for a considerable time, when it will take its form, and be ready for use. The clasp is shown at *B*, *D*, and consists of a piece of hardwood—hickory is best—¾-inch in thickness, and long enough to hold the top of the bow well together. A round hole is bored in one end, *E*, through which the bow passes as far as the knob; the other end is cut with a hole for the passage of the other end of the bow, and a slot, *C*, into which its narrow neck springs when the bow is secured about the creature's neck. A smooth, stout hickory pole, 2½ inches in diameter, reaching from the floor to the beam overhead, serves as a stanchion to which to attach the animal, by means of a small bow, and stationary clasp, figure 2, or an iron ring, *A*. If a little more room is desired for young stock, a link or two of chain, *B*, can be inserted between the bow and stanchion ring. In fastening the cattle, the bow is raised when it passes around the neck, and the clasp is brought on, and the end of the bow is sprung in place. When the animal is to be let loose, the end of the bow is pressed in, the clasp slips off, the bow falls, and the work is done in less time than it takes to describe it, and everything is

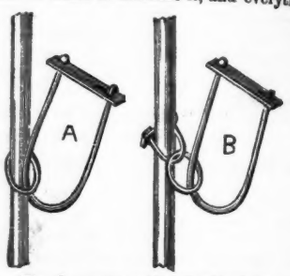


Fig. 2.—BOW AND ATTACHMENT.

out of the way. Figure 3 shows a stable arranged for this method of fastening; aside from the manger, there is but the stanchion poles, one for each animal. There is sufficient freedom of movement of the head, but not an excess; the animal can stand or lie down with perfect comfort, as the bow moves with ease the whole length of the stanchion. After a week's practice, the animals will take their place with their heads by the side of the stanchion, as shown in the figure, with a precision that is remarkable. Having used the method here illustrated for several years, the writer has found the method to be inexpensive, easy in application, and safe.

The Preservation of Wood.—It is known that the decay of timber first begins through the fermentation of sap within the pores, and that it is continued after this by the absorption of water. The neutralization of the acids in the timber by the use of lime, has been made use of to preserve it from decay with success; but the most effective methods have been to saturate the pores with oils or mineral salts. Creosote and Petroleum have been used successfully, but few persons are aware of the enormous absorptive capacity of timber for these liquids. Cypress wood, when dry, will absorb 39 lbs. or 5 gallons of oil per cubic foot, and California Redwood and Pine, absorb twice their weight when perfectly dry. But it is not necessary for perfect preservation that timber should be fully saturated, one gallon per cubic foot, for the most porous woods will be fully effective, and a coating of one and three-quarters of a pint per square foot for weather boards, or half as much for shingles, will render them perfectly water proof. In some careful experiments recently made, dry Spruce absorbed, during 2 days soaking, nearly 2 per cent of its weight of water, and but one-tenth as much when treated with oil; dry Pine absorbed 16 per cent of its weight, and oiled Pine absorbed none that could

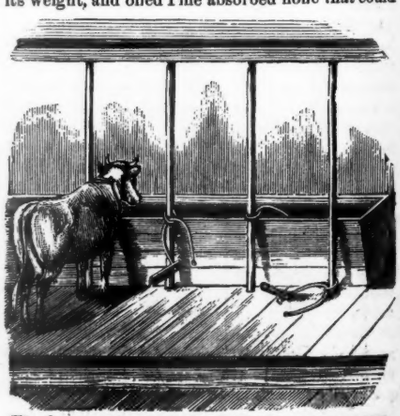


Fig. 3.—STABLE SHOWING BOW AND STANCHIONS.

be ascertained by careful weighing. Pine has proved to be the most easily water-proofed of any timber. Those who wish to preserve shingle roofs, will be able to draw their own inferences as to the usefulness of coating them with crude petroleum.

The Canada Tick-Trefoil.
(*Desmodium Canadense.*)

The genus *Desmodium*, belonging to the Pulse or Pea Family, the *Leguminosæ*, is a rather large one, as it presents us with about 20 species in the Northern States. They are perennial herbs, with compound leaves of three leaflets, small pea-shaped flowers, and flattened pods, which are lobed on the lower edge, and when ripe break up into two or several joints. The generic name, *Desmodium*, comes from the Greek, meaning *bound together*, having reference to the connected joints of the pods. The pods are generally clothed with very small hooked hairs, and when ripe break up at a slight touch into joints, which, by means of the hairs, cling very closely to the clothing, and in autumn one can rarely ramble far without finding evidence that he has been in contact with one of the species in the joints that persist in clinging firmly to his clothing. The trefoil-like leaves and the tick-like clinging of the joints of the pods, give the common name "Tick-Trefoil." They are also sometimes called "Beggars' Lice" and "Beggars' Ticks," names which properly belong to very different plants, but which have a similar provision for distributing their seeds. In most species of *Desmodium* the flowers are small and inconspicuous, but in *D. Canadense* the flowers are much larger than in any others, being half an inch long, and from their greater abundance in dense panicles or clusters, and their lively purplish-pink color, are quite showy. In the engraving the panicle and the flowers are reduced about one-half, the real size being shown by a detached single flower. The stems are usually about three feet, but are sometimes twice as high. Pennsylvania is its southern limit, and it is more abundant northward, along the edges of woods, flowering in August and September, where there is room for such stately plants; they are from three to six or more feet high, often with striking foliage, and very large and showy flowers. One species, having Georgia for its northern limit, is not quite hardy with us; this is *Hibiscus coccineus*, the "Great Scarlet Rose-Mallow," of which we give a flower, leaves, and unripe pods, reduced in size. The stem, which is very smooth, grows four to eight feet high, its long-petioled leaves are deeply cleft, as seen in the engraving; the flowers are from 6 to 10 inches across, of a deep scarlet, and especially brilliant from the shining surface of the petals. This, so far as we are aware, is the most showy of all the herbaceous species of *Hibiscus*, and one of the most brilliant of flowers of its season, which, with us, is early in September, but in its native localities it begins to bloom in July. We say that it is not hardy with us from the experience of last winter only. But the fact that it is not hardy should be no obstacle to the cultivation of so showy a plant, as its roots may be taken up after the stems are killed, and kept in dry sand or earth in the cellar. In European works this species is given as *Hibiscus speciosus*, but the one given above is the older and, therefore, proper name. In view of the readiness with which plants of the Mallow Family break into varieties, we are surprised that so little has been done with our native species. The exotic species of *Hibiscus* already mentioned have given a great variety of color and double and half double flowers. The Great Scarlet Rose-Mallow is a promising subject to work with.

THE CANADA TICK-TREFOIL (*Desmodium Canadense*).

THE GREAT SCARLET ROSE-MALLOW (*Hibiscus coccineus*).

In European cultivators are glad to have in their gardens, and for which they pay as much as we do for European and other choice exotic plants.

The Great Scarlet Rose-Mallow.
(*Hibiscus coccineus.*)

The genus *Hibiscus* includes both shrubs and herbs, and furnishes a number of showy cultivated species; they have usually very large flowers, of the general structure common to the Mallow Family, the most prominent character of which is the union of the stamens (by the filaments) into a long tube, through which the pistils protrude; this structure is very distinctly seen in the single Hollyhock, and runs with slight modifications through the whole Family. Among the shrubby species of *Hibiscus* is *H. Syriacus*, or "Rose of Sharon" (incorrectly called *Althæa*, which is a distinct genus), a hardy shrub, cultivated for its large late flowers, which range from white to purple, and are both single and double. A valued greenhouse shrub is *H. Rosa-Sinensis*, the "Rose of China," with shining leaves and large scarlet or crimson single and double flowers. Among the annuals, *H. esculentus*, the "Okra," with eatable pods, and *H. Trionum*, the "Flower of an Hour," are well known. Of the perennial herbaceous species, the most showy are natives of the United States. *H. Moscheutos*, the "Swamp Rose-Mallow," is common in the brackish marshes from Canada southward, others are found along the rivers of the West and Southwest, some are peculiarly Southern, and two are found in California. Of these all but a few peculiar to the southernmost States are hardy in the climate of New York City, and while occasionally seen in gardens, are not so generally planted as they should

to stock it. From early spring until the end of the blooming season, are to be found wild plants which

The Apple-Leaf Fungus.

(*Roestelia cancellata.*)

Observing upon a neighbor's apple tree, leaves that were turning crimson in spots, we picked some for examination. Our friend, noticing the spots, remarked that he supposed "there would be swarms of insects coming out of those blotches before long." Such deformities of plants are no doubt generally ascribed to insects, and very naturally, as in many cases, the abnormal growths, such as the various galls, oak-apples, etc., are, but not always, due to them. There seem to be three general classes of diseases, or troubles, among plants: (1) Those caused by insects, and therefore of animal origin. (2) Those which arise from vegetable parasites, the most common ones being members of the fungus group, and (3) a class, which so far as we know, due to neither of these two. A class of

Fig. 1.—APPLE-LEAF WITH FUNGUS.

true diseases, where the plants are "out of health"—a *real sickness*, brought about by one or more of a multitude of different and often unknown causes. The apple leaves, one of which is shown in figure 1, are doubtless infested by a fungus, which has been known for a long time, though it is not fully understood even now. Those who read the account of the Wheat Rust in the August number (page 301) will remember that there were several stages in the life of the Rust Plant, in one of which it was on the Barberry. The fungus on the apple leaf belongs to the same group, and is the "cluster-cup" form of the species, resembling, as a comparison of the figures will show, the "Barberry state" of the wheat rust. The cup is deeper, the neck extends much further above the surface of the leaf, and is more finely fringed about the edges, but in a general way a description of the one will answer for both. Figure 2 shows an enlarged view of the "fringed cluster-cup," as it is sometimes called, and a cross-section through a cluster is given in figure 4, where two of the cups, which are more like tubes, are seen. In these pits the orange-colored spores are produced in vast numbers, closely packed together in the bottom, figure 5. If these cluster-cups upon the apple are but a form, or a single stage of some fungus, the question naturally arises: on what plant (or plants) does the other form (or do the other forms) appear? This question has been an interesting and difficult one for students of these subjects; but it is generally considered that the Cedar Apples of the Red Cedar—those bright, orange masses (fig. 3) which appear in spring after a shower or during a long rain, and are sometimes taken for the flowers of the Cedar, and sometimes eaten by children as the fruit—are caused by the same fungus, this being the last stages of the species. Not long ago we saw an apple tree that was growing with its limbs interlocking with those of a Cedar, and on those limbs the fungus was unusually abundant; in fact, the leaves were so covered that there was scarcely room for another cup, while the other trees of the orchard had only the ordinary amount. The Cedar tree was also more infested with the "apples" than others in the woods near by. A knowledge of this connection between these two fungi is important, and teaches that, by destroying the Cedar fungus, that upon the apple may be eradicated. Just how much damage is done by the *Roestelia* is not easy to estimate, but at any rate its presence in the orchard can be of no benefit. Two practical methods of destroying the pest are suggested. In the spring gather and burn all the Cedar Apples—if it is thought best to keep the Cedar trees; and in the autumn rake together and burn all the apple leaves.

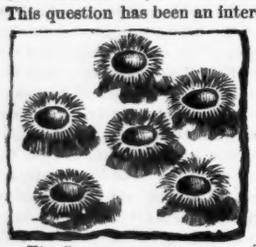


Fig. 2.—SPOT MAGNIFIED.

Unprofitable Fruit Trees.

A remarkable collection of fruit came to us not long ago; a box contained rusty and cracked pears, apples thickly speckled with bitter rot, and half grown peaches, which had dried up instead of ripening. Very likely the sender had the idea that we could tell him what to do with his *trees*, while the trouble lies deeper. An outbreak of typhoid fever no more surely indicates unhealthy surroundings, than does fruit like this show the condition of the soil. No manuring, pruning, or other treatment of the trees will help them. The only remedy is to drain the soil, and that thoroughly.

We have in mind a striking case of this kind; an orchard in which two-thirds is on dry soil, while the remainder is a little low and wet. Six years ago, the trees upon the dry portion were all in a thrifty condition, of fine shape, and bearing abundantly. But those upon the wet land were but a trifle larger than when set out twelve years before; in fact, most of them were gone. The next year the wet portion was thoroughly tile-drained, and new trees were set in place of the old ones. Now those trees are doing as well as could be desired. No cultivating, growing hoed crops, manuring, or pruning, could have made that wet part of the orchard a success. It simply and only needed draining; and when the owner was wise enough to do that, he made fruit growing possible in that portion of the land, which he had devoted to fruit trees, but from which he had received no returns. There is no greater mistake than to devote to an orchard, land that is too wet for the ordinary crops of the farm, for trees least of all can flourish on it. It would be far better to cut down trees that produce fruit of the kind referred to; they would then be of some use as fire wood, while now they produce an annual crop of disappointment. But the trees in all probability may, if not too old and stunted, be restored by draining the soil. This is a most favorable season for doing the work—Do it!

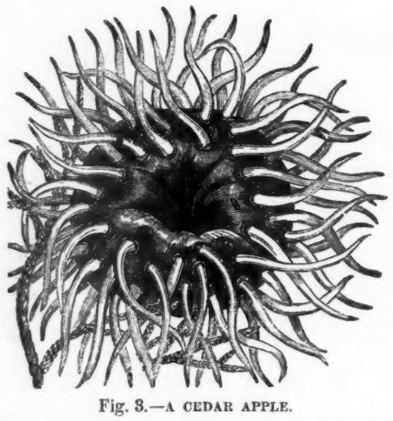


Fig. 3.—A CEDAR APPLE.

Ivy for the House.—When Ivy for home decoration is taken up from the open ground, unless the plants have been prepared beforehand, the branches, in running along on the ground, will have pushed out roots at every joint, and when taken up, the plant is deprived of several feeders. If such a plant is placed in a warm room, the evaporation from its leaves goes on as before, while its supply of moisture is greatly diminished, and, as a consequence, the leaves fall off. Plants of this kind should be kept in a room without a fire, until they can make new roots at the base, and accustom themselves to the loss of those along the stems. When Ivy is set out in spring, its stems should be kept tied up; if allowed to rest upon the soil, they will take root wherever they touch.

Some New White Grapes.

Every grape grower and fruit dealer knows that a white grape will sell more readily, and bring a higher price, than a dark colored or black one. Whether it is because white grapes are *albinos*, and like albinism in animals, this peculiarity is often accompanied by other defects, white grapes soon disappear, very few of them fulfilling their early promise. Every one who grows fruit for market would gladly welcome a white grape with all the good qualities of the Concord, and as few of its defects as possible. After all, the chief excellence of

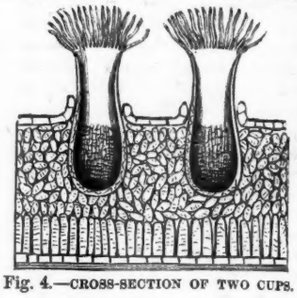


Fig. 4.—CROSS-SECTION OF TWO CUPS.

the Concord is its certainty. Tested by a not very high standard of *quality*, the Concord is not a good grape; but whoever has Concord vines is very sure to have Concord grapes. Some 15 years ago there was a "grape fever," and there was a more general interest in grape culture than there has been since. We then advised the culture of the Concord for this very quality of certainty, and much abuse did we get, as we were encouraging an uneducated taste. We admitted a preference for the second best with certainty over the "first best" with uncertainty of fruit, or rather the certainty of having no fruit. Where now are the varieties advocated by those who placed their standard of quality so high? The trail of grape culture is strewed with their wrecks. But this is a digression. Grape growers still need a grape which will be among white varieties what Concord is among the dark ones, and we think that it is nearer at hand than at any former time. Leaving out others, we confine these notes to those which we for the first time saw at the recent meeting of the American Pomological Society. That we may not appear to show preference for either, we mention them alphabetically:

DUCHESS.—This is raised by A. Caywood & Son, Marlborough, N. Y. If we recollect aright, it results from the crossing of a White Concord seedling with the Walter. It is a large, handsomely shaped and well-shouldered bunch of medium-sized berries, which cling to the stalk with great tenacity. The skin is thin, the flesh very tender, and in flavor it will rank with any of the very best grapes. Its keeping and carrying qualities we assume are, and they appear to be, excellent.

NIAGARA.—Originated with Hoag and Clark, Lockport, N. Y., who state it to be a cross between the Concord and Cassady. Bunch and berry about the size of those of Concord, but more compact. The light-greenish color is sometimes bronzed in the sun. Ripens with the Hartford Prolific, and its quality is very satisfactory. The fruit remains a long time on the vine, and keeps and carries well. Those who have tested the Niagara speak in high terms of the vigor and productiveness, and especially of its foliage.

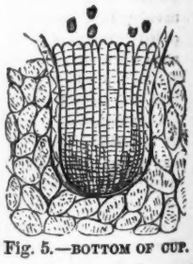


Fig. 5.—BOTTOM OF CUP.

NOAH.—Originated with Mr. Wasserzicher, and,

if we mistake not a seedling, is a seedling of the Taylor. It was exhibited by Messrs. Bush & Son & Meissner, of Bushberg, Mo. It is much larger than the parent, and makes a very good cluster. The Noah is a good table grape, and is regarded by Mr. Husmann and other experienced judges as of great promise for making a white wine.

POCKLINGTON.—A seedling of Concord, raised by Mr. J. Pocklington, Sandy Hill, N. Y. A very large berry in a compact bunch. As exhibited, the fruit from an unfavorable locality was not fully ripe; the fruit ripens with Concord, that from vines in more favorable soil being all gone. As seen at the Exhibition it did not do itself justice. John Charlton, Rochester, who grows it, has since sent us specimens. These have lain now nearly two weeks, and have improved greatly. The berry is a light-green, with abundant bloom; skin very tough; flesh of much better quality than Concord, intensely sweet, and less of the *Labrusca* quality in the taste than in the smell. The berry adheres well to the stalk, and has every appearance of being a good keeper. The great size and copious bloom makes this grape most attractive to the eye.

PRENTISS.—A seedling of Isabella, by J. W. Prentiss, Pultney, N. Y., on Crooked Lake, the famed grape locality of Steuben Co. T. S. Hubbard, of Fredonia, who now has the grape, exhibited a section of vine which indicated wonderful productiveness; the vine and foliage are described as most vigorous, except that the vine is disposed to overbear. The berry is larger than the parent, yellowish-green, sometimes with a rosy tint to the sun; quality similar to Rebecca; ripens with the Concord; keeps until New Years, and carries well.

This is certainly a remarkable collection of new grapes, and we shall be much mistaken if more than one does not meet the demand for a white grape that will be as reliable as the Concord. Some white and other light-colored seedlings by Mr. Jacob Rummell, of Mo., were exhibited, but in rather poor condition, and are noticed elsewhere.

A Portable Package for Fruit.

The usual crate in which peaches, pears, and other fruit are packed, and the ordinary fruit baskets, are so inconvenient, as to seriously restrict the sale of their contents. The healthfulness of fruit is beyond question, and it is important that its consumption should not be restricted by putting it up in heavy and unhandy packages. As a suggestion towards a better way, we give illustrations of a coarse and inexpensive wicker or split basket, or hamper provided with a handle, by which it can be carried as easily as a valise. Such hampers are largely used in Europe for packing fruit, game, vegetables,

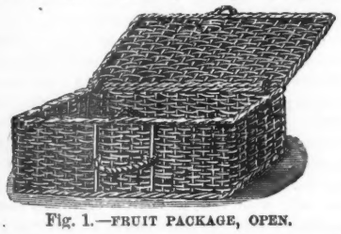


Fig. 1.—FRUIT PACKAGE, OPEN.

bottled liquids, meat, and any of those things which we put up in the square or oblong crates, which have nothing about them by which they can be picked up or carried. At figure 1 is shown the crate open, and at figure 2 it is shown shut and fas-

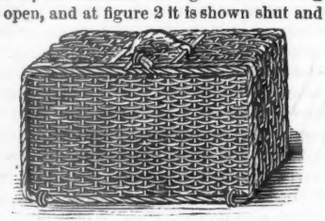


Fig. 2.—FRUIT PACKAGE, CLOSED.

tened. It may be made to hold the same quantity as a crate or a basket, and is as well ventilated, is stronger and tougher, and if thought proper, cleats of wood may be attached to the corners, so as to make spaces between them, for ample ventilation, when packed in a car. The willows should be thick and unpeeled, or oak or white ash splints may be used. The willows may be grown, or the splints made at home, and the crates may be made during the winter, at which season there is ample time for such in-door work. The cost need be no more than that of a crate, and may be even less.

Shading a Greenhouse.

In our climate, a shade upon the greenhouse is imperative. The method most generally employed is to make the glass semi-opaque by the use of

END OF SLATS AND FASTENING.

white-wash; while this has several points in its favor, there are two serious objections to its use; it is permanent, and as it is directly upon the glass, absorbs the heat of the sun, and gives it off into the house. We recently saw upon one of the houses of Ellwanger & Barry, at Rochester, a shade which impressed us favorably, and were informed that it gave great satisfaction in operation. The shade is a lattice made of pine slats 12 feet long, one inch wide, and one-eighth of an inch thick. These slats are joined by iron staples and rings as shown by the engraving, which represents the ends of two of them. The staples have their ends turned down, and driven into the slats, and each is attached to the one opposite, by a small ring. By an arrangement of cords and pulleys, the lattice work can be raised and lowered at will. The shades run up and down, upon supports, made of pieces of scantling, placed about every six feet in the length of the roof, and high enough to raise the shade about six inches above the glass. Being thus elevated, a current of air can pass between the shade and the glass, and the light admitted through the narrow spaces between the slats, is constantly changing.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

Home Topics.

BY FAITH ROCHESTER.

Transplanting Children.

If I do very little soil gardening, it is mainly because I have so much gardening of another kind—*Kindergartening*. Many of us can not find good garden soil with the right conditions of climate, sun, and moisture; or, in other words, schools and playmates which will feed the child's growing mind with right ideas, kindness and good behavior in those associated with the little one, so that its better nature may be aroused and cultivated. Wise parents take all this into consideration in locating their homes. They consider the neighborhood influences, and prefer the vicinity of good schools. The home influence is more important than any other, and those who depend almost entirely upon schools for the education of their children, shirk their duty, and make a great mistake. But sometimes it happens that the best thing for a child or youth is, to send it away from home (even away from a *good* home), for a little while. This must be done carefully. I have held this view for many years, and the experience of the last year confirms me in it. A few weeks away from home, with some good auntie or relative, has done more to break up certain unpleasant home habits than almost any amount of correction and reproof at home. I like to have the children go away from me a little while—since it is impossible for me to go and leave them—for my own sake, too. It gives *me* a chance to turn over new leaves, and I am often glad enough to put my blunders behind me, and try whether I can not make for the future a new and better record with a fresh beginning.

I do not advocate parents shifting the burden of the training of their children upon friends, but certain little disagreeable habits that grow and flourish easily in the freedom of the home circle, die a natural death when the child finds itself in other circumstances. I have had other friends' children in my home, and have seen how their love for the home friends grew with absence from them, and how new resolves sprang up in their minds.

The Care of Jelly and Preserves.

Last year's jelly moulded worse than any I ever made before, the result of keeping it too warm, and of not pasting covers over the glasses until they had stood open several days. They should be covered so soon as cold. I prefer a common, plain clear glass tumbler, without patent covers of any kind, for jelly. Then, as soon as emptied of jelly, it is ready to drink from, hold flowers, or as a mold for Blanc-mange or Mush. Tissue paper wet in brandy next to the jelly or jam, before covering it, in order to prevent mould, is not necessary, and the brandy almost always spoils the peculiar flavor of the jelly. With thin paper next the jelly (omitting the brandy), the mould which is so apt to grow over the top of the fruit, can be pulled off with the paper, and not affect the jelly beneath, but it is better to keep the jelly and preserves cool and dry that mould would not molest it.

Jelly and Marmalade.

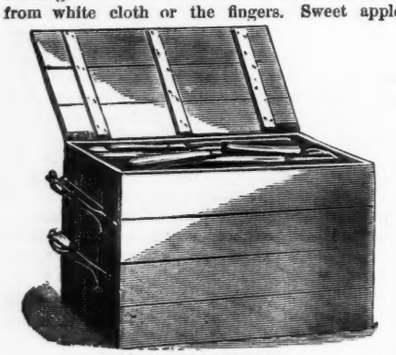
It is most convenient with crab-apples and plums, to make jelly and marmalade from the same fruit, and both are the nicer for this separation of juice and pulp. One thus saves squeezing the fruit-juice through a jelly-bag. I let the plums drain through a colander, but the stewed crab-apples (stewed soft, with very little water,) are hung up in bags to drain all night. The juice is then ready to be measured and boiled before the addition of "pound of sugar for pint of juice"—a *scant* pound for apples and plums. The pulp remaining in the bag or colander is rubbed through a sieve or colander, to remove seeds and skins, and only needing to be boiled a short time with the sugar (three-fourths of a pound, or a little less, to a pound of pulp), when it is thick and firm enough to put away. The rule is, to use ¾-lb. sugar for 1 lb. of fruit, but less is needed if you put up the marmalade in self-sealing glass jars. These jars are so cheap now that one can afford to use them for all sorts of sweetmeats, and so save a deal of trouble in their keeping. You can sweeten your "preserves" to suit your taste, not having to depend upon an excessive use of sugar to make them "keep." As all kinds of sweetmeats spoil quickly after they are opened out, it is prudent to put them up in small jars to be used up at once.

The glass jars that have been emptied of the earlier summer fruits may be immediately used again in preserving later fruits, etc. When you stew a small quantity of cranberries, you may as well stew enough more to fill a jar, sweeten them ready for the table, and seal them up *boiling hot*, and then you can have cranberry sauce when it is usually out of season. If apples are plenty, and hard to keep, fill up the empty jars with nicely stewed ones, and have them for sauce and pies.

Fruit Stains.

But fruit stains which bother us some at all times of the year are not difficult to remove from white cloth. If the spot is small, pour *boiling* water through the spot until it disappears. This will not remove the stain if it has been previously wet, and may not extract it if the stain has been of long duration. A solution of Chloride of Lime will extract fruit stains with certainty. It will also (I am assured) remove mildew stains if applied several times, and laid in the sunshine for a little while each time. Rinse the articles well after using it, and be sure and not leave this solution on, or in, the cloth longer than a few minutes, as it injures the fabric. Put two ounces of Chloride of Lime into a pint bottle; add a little water, and stir well. Then fill up with water, and let it remain a few days, corked loosely, to let the gas escape and prevent explosion. After the liquid becomes clear, carefully pour it off from the sediment into another bottle, cork and label it, and keep in a

dark place, or wrap it with paper, to exclude the light, which injures its bleaching properties.—[The solution in which Potash takes the place of Lime is vastly better than one of Chloride of Lime, as in that Lime may become insoluble, and remain in the fabric. This solution is sold at the drug stores as Javelle Water, but it may be prepared with little trouble. See "Household Notes and Queries" on another page.—ED.]—I doubt whether this solution, so prized by city people, is any more effective as a general thing, at least for *fresh* stains, than sour milk or buttermilk. The liquid may remove some old, scalded-in stains, which milk can not affect. Milk, either sweet or sour, will sometimes work wonders in removing stains from colored goods. Only yesterday, I had proof of this. I put a cup of stewed frost grapes into a lunch basket for my husband, and forgot to cover it with a slice of bread fitted inside the cup, as I usually cover anything juicy. Half an hour after he started from home, his basket and his light grey trousers were found in the sitting-room (I was washing in the shed), and one side of the garment was streaked with dark purple stains all down its length. I couldn't pour hot water through each one of these countless spots and spatters, and I couldn't apply a bleaching fluid; but I had sour milk, and after one leg of the garment had soaked half an hour in this, no one could find a stained spot, and when the pantaloons were washed and pressed, there was no sign of grape stain. A child's dress stained with the same fruit got into the wash without attention to the stain, and now there is a hopeless light bluish spot made by the fruit-juice. Those who have no boiling water, nor bleaching fluid, nor sour milk at hand, can try the fumes of a common sulphur match held close below the moistened stain while burning. This is said to remove most fruit stains from white cloth or the fingers. Sweet apple



A CONVENIENT WOOD-BOX.

stains can be removed by sour milk, and plum stains by either sweet or sour milk, I am told.

Another Wood-Box.

There are many places in the country, where, we are glad to say, wood is still the fuel of the household. The planting of forests upon the now treeless prairies, will possibly cause the wood-box to replace the coal-hod; and the shovel and the tongs will be restored to their places as necessary parts of the furniture of the kitchen. In the engraving we present still another box for holding fire-wood, which has the advantage of being cheap and handy. An ordinary heavy dry-goods or other box is the basis, the cover being braced with cross slats and provided with hinges, so that it can be closed when desired. It is a common experience that the shovel, if not provided with a place, is often at the bottom of the wood in the box when wanted, and the same may be said of the tongs. To remedy this trouble, four hooks—the same as used in closets for hanging up clothes—are fastened to the outside of the box, one pair for the shovel, and the other for the tongs to rest upon. A handy place being thus provided for these tools, they should, and doubtless will, be found there. A coat of paint—lead-color is perhaps the best for the kitchen—will improve the appearance of the box. A Wood-Box of some kind is needed in the kitchen of every wood-consuming family, and this will be as conducive to neatness and convenience as one more expensive.

A Feather Chair.

In the Ladies' Department at a State Fair, which we recently attended, there was a little chair made of feathers, which attracted much attention. The chair, which the accompanying engraving represents one-fifth its real size, was made entirely of turkey feathers. The back is formed by the vanes or plumes of two feathers, the quills passing down and fastening to the two rockers, thus forming the two hind legs. The rockers consist of two quills, with the vanes removed and running to fine points behind. The front legs, and the arms and "rounds" are made of the lower portions of as many quills, and two or more tips are arranged across each other, to form the bottom. It is easily constructed, and makes a neat and novel ornament. What the particular use of the feather chair is, we did not learn; but it is introduced here as a hint to those who occasionally make "fancy articles" for sale at fairs, and who wish to make something out of the usual run of such things.

A CHAIR OF FEATHERS.

The Communities' Mop-Wringer.

When a family is increased from six to eight, to 250 to 300 members, domestic labors become correspondingly magnified. In the Oneida (N. Y.) Community, where the members live as one immense family, the consequent enlargement of tasks, which are but trivial in an ordinary family, have made it necessary to devise means for facilitating them. In August, 1877, we illustrated a Vegetable Washer, which was invented by one of the Community, Mr. J. Leonard, and we now present another of his inventions, a Mop-Wringer. As every one who uses a mop knows that the most disagreeable part of the work, the wringing, is that upon which its proper execution depends, and will no doubt wonder why such a help had not been invented long ago. Unlike the Vegetable Washer, the utility of this is not confined to large establishments, but is equally a help in an ordinary household. The Mop-Wringer, as seen by the engraving, is a modification of the Clothes-Wringer, in this case made easily portable, so that it may be carried to the work. It consists of a bench upon wheels or castors, with a shelf below, upon which one or two pails of water can be placed. The upper part carries two rollers, between which the mop

THE COMMUNITY MOP-WRINGER.

is passed, and subjected to strong pressure by a spring (not shown in the engraving), which adjusts the rollers to any thickness of mop; these are operated, as in the ordinary wringer, by means of a powerful crank. The manner of using the Wringer will be understood from the engraving, and it operates without making it necessary to touch the mop with the hand. Since its invention, another use has been found for the Mop-Wringer—that of a household truck. The lid, shown open in the engraving, shuts down flat, forming a place upon which, as well as upon the bench below, trunks and other heavy articles may be moved about, and, when made (as some are) with rubber tires to the wheels, it moves noiselessly along the floor.

Canary Birds.

So many questions are asked us about Canary Birds, especially as to care, breeding, etc., that we reply to them in a general article. This pretty little captive bird—and its prison is a happy one, or should be made so—gets its common name from the Canary Isles, where it abounds in its wild state, and is clothed in a gray or brown plumage, quite in contrast with the white, yellow, and green of the domesticated varieties. The Canary birds have long been esteemed for their beauty and melody, and were domesticated in Europe nearly three centuries ago, where, at the present time, they are bred on an extensive scale, especially in France and Germany, from which countries we import them by the tens of thousands. The Canary-bird trade is vastly greater than would be supposed by those who have not looked into the subject. In England there have been annual shows—and what beautiful shows they must be!—for the last half century, at which large prizes have been awarded among the different varieties, which are reckoned up by dozens. So far as looks are concerned, a bird is valued according to the purity of its coloring, or if mixed, in proportion as the markings are regular. A mottled or spotted bird is not held in much esteem, while one which is a pure yellow, or a yellow with black wings and tail, is greatly prized. But above the color is the song; and in the choice of a bird it is best to observe the rule, "Sacrifice color to accomplishment." Nature seldom unites rare beauty and great accomplishments. A person should not reject a sweet singer because its tail feathers are gone; they will soon come out; but this can not be said of the voice where it is wanting. Some estimate a bird's value by the loudness of the voice; we prefer the softer—and we think sweeter—tones, in fact, have almost been incensed by the *noise* which some birds will make when they sing.

First, as to Cages, of which there are many different styles, but none should sacrifice the comfort of the bird or endanger its life. The large wooden frame cages are fast passing out of date, and are superseded by those made entirely of metal, which are neater, lighter, easier cleaned, and less liable to harbor insects. The wires, against which a bird will often pick more or less, should never be coated with paint, as it may cause its death. Ample provision should be made for food and water within the cages, and there should be a proper arrangement for hanging it up—a hook, or a stout ring, is better to hang it by than a ribbon, which in time will wear out, when the cage and contents may have a fall. Perches and a swing will of course be provided. Canaries are very fond of a bath, and should be given water for one nearly every day. The tub should be removed when the bath is over. To see the little fellow enjoy the splashing and fluttering, is worth all the trouble. Above all things in the keeping of birds, neatness is of the greatest importance. They need attention *every* day. If the bird is "too much of a trouble," then do not keep it a day. Birds are very tender things, and as such are very susceptible to treatment, good or bad. They should have a plenty of air and light, but not the dazzling sunshine. A bird should not be out-of-doors when the air is at all chilly; and in winter it is cruel to leave it in a room in which the temperature goes down to freezing or below.

"What shall we feed our birds?" is a question frequently asked, and it is an important one, as their health depends largely upon their food. Do not dose them with sweetmeats; their systems de-

mand a plain diet. The natural food of the Canaries is seeds and green herbage, and a mixture of Rape, Canary, and Hemp seed, together with Chickweed, Cress, Cabbage, etc., is found to be the most healthful. A Cuttle-fish Bone (sold at the drug stores) hung in the cage will furnish the lime they need, and which they find in the wild state.

Perhaps the most important point is to know what to do when the bird is sick. With proper care they seldom sicken, but sometimes illness is unavoidable. Birds will, without any apparent reason, take colds followed by sneezing and hoarseness. For this a bit of Liquorice, put in the drinking water, proves beneficial. In case of loss of appetite, shedding of feathers, and general decline, a plenty of Water-cress is valuable. Young birds are frequently troubled with "Gapes," and should have an abundance of green food and be kept in a warm place. Canaries that are not properly cared for will be infested with lice, for which a little Aniseed mixed with the gravel on the floor is a preventive. Epilepsy is caused by too rich food; the cure is in quiet and a simpler diet. In cases of diarrhœa put a rusty nail in the drinking water and chalk, broken fine, on the floor, omitting all green food. A bird well cared for—and the care is by no means great—is a cheerful and cheering companion. If one loves such a pet—and most people do—the care is more than repaid in bright plumage, graceful actions, and sweet music of these little birds.

Wild Autumn Berries.

There are several wild berries and other fruits which ripen in the fall, and are very pleasing when employed for home decoration. The ripe fruit of

The Barberry (*Berberis vulgaris*) is gathered quite largely for preserving; but it is also useful in an ornamental point of view. A long branch of the Barberry, with its graceful curve (it has its prickers, which are to be avoided in gathering—and so has the Rose), and clusters of bright red berries hanging upon their long stalks, is a thing of beauty, and when arranged with autumn leaves and dried grasses, is a joy through the winter to every eye that sees it. In pleasing contrast with the dark-scarlet fruit of the Barberry is the

Red Cedar (*Juniperus Virginiana*), with its dark evergreen branches, sprigs of which, when full of its lead-colored berries, may form a pleasing element in house decoration. For red, again, the

Winter Berry, or perhaps better known as Black Alder (*Ilex verticillata*), is one of the most

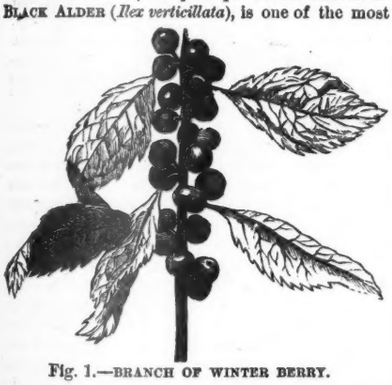


Fig. 1.—Branch of Winter Berry.

attractive shrubs, with its profusion of intensely bright scarlet berries, which cling tightly to the slender branches. See the engraving. The common

Sweet Briar (*Rosa rubiginosa*), and other Wild Roses, will furnish bright and attractive scarlet *hips*—they are not properly berries, which are well worth the gathering, as are those of Garden Roses.

The Sumachs have large dense clusters of small scarlet, crimson, or purplish berries. The Stag's-horn Sumach (*Rhus typhina*), and the Smooth Sumach (*Rhus glabra*), are both common, and their berries differ in color with their degree of ripeness. A few of these clusters help to set off the green of the Cedar. Among many others, there still remain two kinds which should not be overlooked.

The Burning-bush or Spindle-tree (*Euonymus atropurpurea*) is a tall shrub which bears deeply four-lobed, light-red capsules (shown in figure 2), peculiarly attractive, as they hang on the long slender stems. These soon open and expose several seeds, each of which is enveloped in a dark red pulp. More brilliant than either of the above is the

Wax-work or Climbing Bitter-sweet (*Celastrus scandens*), a woody climber, which is beautiful

Fig. 2.—The Burning Bush.

for its foliage, but in autumn, when the orange-colored pods throw open their three valves or parts, and expose the scarlet pulp which surrounds the seeds, they are exceedingly attractive. In the vicinity of villages and cities, scarcely a pod is allowed to ripen; they are gathered by boys and others, who sell them in little bunches on the streets.

Useful Bridal Gifts.

[The following very sensible article comes from "M. A. O.," Hartford, Ct., and we have no doubt that its suggestions will be as welcome to those who are puzzled "what to give," as the gifts themselves will be to the young housekeeper.—Ed.]—Having obtained much credit for the "Bridal Gifts" that I have for many years been accustomed to make, (which I call "Housekeeper's Outfits,") and being requested by a friend, who had heard much of them, to give her a list of the articles comprising them, I thought it might be well to send you a copy for your excellent paper (from which I have gained many valuable hints and recipes), that others in all parts of the country might have the benefit of it:

I would remark that the articles made of *old materials*, such as sheets, pillow-slips, table-cloths, towels, etc., are the most valued by young housekeepers, but my list comprises: One doz. new brown dish-towels; one doz. new brown hand-towels for the kitchen. For dining-room use: One doz. good towelling, for china; one doz. linen tumbler napkins; one doz. cotton diaper, or towelling, for silver—these last two to be made square; one doz. window cloths, made from old sheets, 25 inches or more square, according to the size of the sheet (marked with Indelible Ink "W. C."); one doz. wash-stand napkins, for wiping the dishes on the stand, made of old table-cloths, 20 inches or more square (marked "W. S.") These last two articles to be slightly hemmed. One doz. dusters, made *double*, of old Paper Cambric; one doz. dish-cloths, or washers, made of towels, worn very thin, doubled twice, run together on the edges, and quilted from corner to corner; one doz. China and window-washers, made in the same way, of old damask or linen towels, and table napkins. One dozen iron holders and wipers—these last two made of old ironing sheets, and one doz. scrubbing cloths, made of new or old bagging, or any coarse brown stuff. These articles I do up neatly, in separate packages of a dozen each; tie them up with red tape, which I procure from the merchants' string drawers; label them with visiting cards, according to their uses, and they always make a good show among the other "Bridal Gifts;" and I have had young housekeepers that I had fitted out in this way, after they had been keeping house for several years, tell me that their stock of conveniences was not yet exhausted, and that they had found these things among their greatest household comforts.

BOYS & GIRLS' COLUMNS.

The Doctor's Talks.

In this Talk I wish to "catch up," so that we may go on regularly. If, when I began, in March last, I had thought of beginning to talk about *Matter* and its properties, I should have arranged the subjects differently. I like, always, to begin at the beginning, so that each step will lead to the one beyond, and there will be no going back to explain things. When some one of you wished to know about the *Center of Gravity*, I found that I was obliged to say something as to *Gravity* and its effects upon Matter, and this made it necessary to talk about *Matter*, as these Talks for the months just past show. Now that we have for several months talked about

THE INTERNAL FORCES,

those which act within a body, such as *cohesion*, and the *elasticity*, *hardness*, and other properties due to it, as I have tried to show for the past five months, I would go on with the *External Forces*. Properly, *Gravity* or the *Attraction* of *Gravitation* would come next, but I said about that nearly all that you need to know at present—but not quite. Let us now go back in our review to

GRAVITY OR ATTRACTION OF GRAVITATION,

which you will remember was described as the force that causes all bodies to attract each other, and that it acts in proportion to the size of the mass, and that the earth, being the largest mass of matter near us, attracts to itself all other bodies. The measure of the force of this attraction we call *weight*. We measure the force of this attraction in ordinary weighing. If we buy sugar, we get as much sugar as will be attracted towards the earth with the same force as a piece of iron, or weight which it is agreed to call a pound. Then we have also considered

THE SPECIFIC WEIGHT,

or the *Specific Gravity* of bodies, in which they are compared with the same bulk of another body—water—as I tried to show you last month. Still there is something more to say about *Gravity*. When a body is raised above the surface of the earth, and its support is taken away, the earth attracts it, and it will fall. Some of you may have climbed a tree, and trusting to a decayed limb, have obeyed a natural law, and came down to the earth. At such a time you did not naturally stop to think much of

THE LAWS OF FALLING BODIES.

You did not then think that a boy of half your size, would have reached the earth just as quick, that one twice as large would have reached it no sooner. Yet it is one of the *laws of falling bodies*, that all bodies, large or small, fall with the same velocity—reach the earth in the same time, when dropped from the same hight, as described in May last (*body*, you will recollect, is a term for any mass of matter, and does not refer to your particular *body*). Another law which you should know is, that bodies, in going towards the earth, fall

WITH ACCELERATED MOTION.

That is, if we drop a stone from an upper window, it will fall a certain number of feet in the first second of time, and in the next second, twice as far as in the first, in the third second, five times the distance. This rule is stated thus: The space passed through by a falling body, is as the square of the time. Careful experiments have shown that a body falls 16 feet in the first second of time. When a stone is five seconds in falling from a precipice, we say 5x5 is 25, the square of the time, and 16 feet, (the distance for one second) 25×16=400, the distance the body fell, and consequently the hight of the precipice. As space is scarce, and as you may think the subject dry without engravings, I make this Talk a short one. An interesting and useful application of another law of falling bodies is seen in the pendulum, but I must leave this important subject until next month. The Doctor.

The Doctor's Correspondence.

"ARE GOLD-FISH FOUND IN THIS COUNTRY?"

Yes, they are *found* here, but are not natives. I can recollect when these Golden Carp, or Gold-fishes, were great curiosities. When I was a youngster, an uncle, who was a sea captain, and sailed to China, brought us home a couple of Gold-fishes in a glass globe, and I can recollect what a curiosity they were, and how people used to call and see and wonder at them. Now they are very abundant, and being perfectly hardy, have been placed in ponds in various parts of the country, where they have multiplied at a great rate. Many years ago the bank of a pond somewhere along the Hudson River, that was stocked with Gold-fish, broke away, and allowed the fish to enter the river. Now they are very abundant in the Hudson and the waters running into it. I have even seen boys catch them in New York City. In the upper part of the island there are whole blocks of sunken lots, many feet below the level of the streets; these connect with

the river by sewers, and are really ponds rather than blocks. The fishes find their way into these places, and are caught by the youngsters. When an animal or a plant, brought from another country, makes itself at home, and multiplies itself, it is said to be *naturalized*; we may say, then, that though the Gold-fish is not a native, it is thoroughly *naturalized* in this country.....One young friend wishes to have me tell him something about

"WHAT GAS IS,

and an experiment to prove it." His question is not put very clearly, but I think I know what he means. In my "Talks" I shall in time try to show how gases differ from other kinds of matter. In the meantime it may interest him to know that he not only lives all the time in gas, but could not live without it. The air is a gas—properly speaking, a mixture of two gases. But there are gases different in all respects from those which make up the air, and the subject is quite too much for our answers to correspondents....Most of my letters ask me something, and it is not often that I get a letter that gives me some information. But here comes a letter from New Jersey telling about Master Teddy, a little fellow who had been travelling in Europe, and after he came home, told of the curious things he saw while away. He says that

THE "CURIOUS-EST THING HE SAW

were the hats worn by the Welsh peasants." Master Teddy was so much struck by the hats worn by the women on market days that he wished to bring one home to show to his friends in America, and he only gave up the idea when his father jokingly told him that no ship smaller than a man-of-war could carry it. As he could not bring the hat, Teddy had Agnes Henry make a drawing of the hats and their wearers. I think you will agree with our young friend that they are the "curious-est" kind of hats; with these tied down over their muslin caps, the women must have appeared very strange. I hope that Master Teddy may tell of some other things he saw, and may have some other drawings made while he was abroad.

THE CURIOUS HATS OF THE WELSH MARKET WOMEN.

No. 470. Illustrated Rebus. — A truthful and moral sentiment worthy of the regard of every one.

To All Boys and Many Girls.

The Telegraph is coming into use everywhere, almost. A single wire stretched between two points, miles, or hundreds or thousands of miles apart, with a little instrument at each end, enables two persons, thus separated, to hold instant conversation. The language used is very simple, easily learned, especially by young persons. It is just as easy to read .. .. —— . ... —— . as to read c o m e h o m e. Two clicks, an instant of rest, and another click, are as readily understood, as the sound *see* (*c*). Two clicks are as easily understood as the sound *oh* (*o*), and so on.—It would be a good thing for all boys to understand making and reading telegraphic letters or sounds, and would be interesting to most girls and young ladies also. A large number of our telegraph offices are *manned* by ladies. Telegraph men tell us they prefer Ladies as operators in small offices, for they are on hand more regularly, filling up the spare or waiting hours with needle-work. But aside from its use as a means of livelihood, telegraphing is interesting. Wherever there are two houses of neighbors or friends, or two shops, or two or more buildings on a farm, between which it is desirable to have frequent messages, or communication, a single wire stretched between them, with the needed apparatus, enables it to be done instantly, at all hours, in *all* weathers.—Just now there are good working telegraph machines, so cheap that a *pair* of them can be got for only $12, with batteries, instruction books, etc., all complete. The only extra expense will be the stretching of a cheap wire between the two places to be fastened on trees, or even along fences.—The wire may be bent aside into any number of houses, bringing them all into a talking connection with each other for an additional expense of $5.00 for each added house. We would like to have a great many of our young readers, of both sexes, put up such lines between their dwellings this fall and winter, and thus learn to become expert writers and readers by telegraph. It will need very little effort for any one or two boys to get up a club of 14 subscribers, and thus secure the above apparatus *free*, as offered in premium No. **21**...By the way, there are a great many very fine premium articles that our young friends, boys and girls, would much like. Some of them can be easily obtained without money outlay. Better study through the premium list given last month, pages 409 to 440, and see the things that you can get.

Our Puzzle-Box.

NUMERICAL ENIGMAS.

1. I am composed of 22 letters:
   My 20, 3, 5, 4, 21, 16, is what a flea is.
   My 13, 4, 12, 21, 1, is the name of a tree.
   My 11, 18, 3, 14, 15, 6, is what we all should be.
   My 17, 8, 9, 10, 2, 19, is a weapon.
   My 6, 11, 4, 7, and 16, 11, 22, are pronouns.
   My whole is a well-known proverb.
   F. L. HOLLENBURGH.
2. I am composed of 22 letters:
   My 2, 19, 13, 14, 6, 3, 4, is a city in France.
   My 5, 19, 21, 7, 8, 11, 10, is a city in New Jersey.
   My 12, 14, 20, 9, 16, is a city in China.
   My 18, 5, 15, 1, 6, is a city in New York.
   My 17, 19, 2, 22, is a city in New York.
   My whole is a city, and where situated.
   C. W. HURST.

DECAPITATIONS.

(Take away the first letter.)

1. Behead a grain, and leave that with which it is cooked.
2. Behead a certain kind of wood, and leave what a shad is.
3. Behead a particle, and leave a nickname.
4. Behead a bend, and leave a vessel.
5. Behead a portion of time, and leave a pronoun.
6. Behead a verb, and leave a preposition.
7. Behead a loud noise, and leave a propeller.

Place the beheaded letters in their order and make a fruitful theme for conversation. JACK.

METAGRAM.

In a word of six letters (something without which no man could live) may be found eighteen nouns (amongst which are four different animals) and ten verbs. What is the verb?

DROP-LETTER PUZZLE.

(Every other letter of the word, beginning with the first letter, is left out. Instead of defining each word we give a sentence which the word is to complete.)

1. His complaints were —r—u—d—e—s.
2. I was treated with great —o—d—s—e—s—o—.
3. A habit of —r—c—a—t—n—t—o— is deplorable.
4. You will find the task —m—r—c—i—a—l—.
5. The prisoner was safely —n—a—c—r—t—d.
6. Patience is a desirable —h—r—c—c—l—t—c.
7. You need not —x—o—t—l—t—. I am determined.
8. I was completely —n—a—a—i—a—c—.
9. My teacher was a rigid —i—c—p—i—a—i—n.

CROSS-WORD.

My first is in tumbler but not in the glass,
My next is in maiden but not in a lass,
My third is in justice but not in the law,
My fourth is in hatchet but not in a saw,
My fifth is in apple but not in a plum,
My sixth is in finger but not in a thumb,
My seventh is in barter but never in sell,
My eighth is in forest but never in dell,
My ninth is in turkey but not in the hen,
My tenth is in goose-quill but not in the pen:
And now if the letters correctly you find,
They will give you advice of an excellent kind.

ANAGRAMS.

1. I canned cents.
2. A thin crate.
3. O stop deer.
4. Lover's tune.
5. Rise Rover.
6. Lading nut oil.
7. Bat's carts.
8. Magpie's girl.
9. O! more bustle.
10. Nice graves.

ANSWERS TO PUZZLES IN THE SEPTEMBER NUMBER.

DOUBLE ACROSTIC.

Colorado—Trinidad.

C— on —T
O— tte —R
L— ev —I
O— fte —N
R—istor—I
A—roun—D
D— ian —A
O— l —D

NUMERICAL ENIGMAS.—1. Hate the evil and love the good. 2. United hearts death only parts. 3. Dr. Livingston.

CROSS-WORD.—Electricity.

PI.—Snow is congealed vapor, which would have formed rain: but through the coldness of the air has been frozen in its descent, into crystaline forms.

The Second Drawing Lesson.

It is best for us to continue with straight lines, but let us put them together so that some carpenter and joiner work may be represented. In the first place in figures 1 and 2 are shown two of the various ways of uniting timbers, called scarfing. In the first case the lines where the two pieces come together are all oblique, that is, not parallel with the upper and under sides of the timber, as is the case in the second. The square place in the center represents that a portion of wood has been removed from each piece of the timber, and a block driven in after the parts of the splice have been brought together, thus serving to bind them. This shading is done by drawing a few lines near together. We will have more of this later on, and also we shall show how to represent that there is a hole in the timber, etc., etc. Again, suppose you wished to show how a piece of timber ought to be fastened together, by the joint called the "dovetail," so named because the pieces that fit into each other are broader at the ends than below, as is the case in the tail of a dove. In figure 3 a short bit of timber is represented as made up of two pieces "dovetailed" together. Ten short, straight lines, passing across the two faces in sight, in a zigzag manner, show this particular method of joining. If it was thought best to show the face of the "dovetail" before it was joined together, a few lines would make it clear as is the case in figure 4. It might take much time to explain in words what a few lines will show. It would be very hard to find a first class carpenter and joiner without a pencil in his pocket, and if you could look over his books and papers, many drawings would be found. It is not necessary for us to give any more illustrations of ways of joining together, these you can find, and draw for yourselves. In the barn, beams and braces may be found, and from them several drawings may be made without any great trouble.

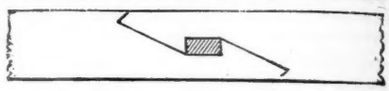


Fig. 1.—OBLIQUE SCARFING.

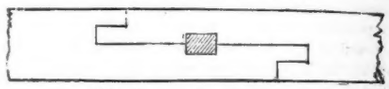


Fig. 2.—SQUARE SCARFING.

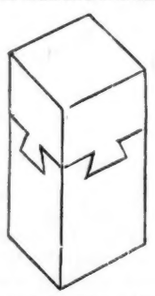


Fig. 3.—DOVETAIL JOINT.

Fig. 4.—THE FACE.

In the next place we will try our hands at drawing a table—a very simple one—and for that reason we take it. Perhaps you may find one like it (fig. 5) in the kitchen. We have seen such used for general kitchen work, and they are the best for such purposes, because strong and

solid. Those who have these tables can draw them, and those who have other kinds can draw their own. If it is preferred, draw a stand; it will answer our purpose as well. First, draw the top, making it of any shape required by the position from which it is seen. In the next place put on the legs, by drawing the front or facing corners, remembering that, no matter what position you

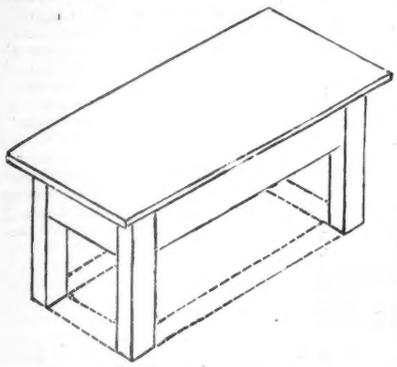


Fig. 5.—THE TABLE.

may be in, the legs must run straight up and down—be perpendicular—and all of the same length—at least in any ordinary table, like the one shown in the engraving. The side pieces are next put on, and the table is finished by drawing the inner side of the front legs, and the portions of the back ones that may be in sight. The dotted line joining the feet of the legs should form a rectangle similar to the top of the table. After having drawn the table in one position, draw it as seen from another part of the room; or the table can be turned around until the position suits—just as the artist twists your head and body this way and that way, to get the best position. There is much to be learned in sketching so common a thing as a table, and at first some patience may be required—there is much in getting accustomed to the use of the pencil, and such objects are better to begin with than animals or plants. When the table has been made, of course some chairs will be the next in order. It may not be as easy to find a chair with outlines that are all stright lines—such chairs are not so common as in the days of our grandfathers. Those who have doll chairs may be provided for. To draw a chair like the one shown in figure 6, is, with the practice we have had, mostly a matter of time. Begin with the seat, and then the legs, just as in the table, and finish the back the last thing. How many get it right the first time, and do not have to write under the picture "*A Chair*," that others may know what it is? A great many, we suspect. Now turn the chair around, and try again, after which it can be turned down on the side. When it has been taken in various positions, put the chair out of sight, and draw it from memory. Bridges, houses, barns, etc., are drawn before they are built, and sometimes every piece is put together, *on paper*, by the architect, while the wood is still standing in the forest, and the iron is in the mine.

Spiders, Spinnerets, and Cobwebs.

At the very outset we feel that there is a great dislike for Spiders. The very word seems to have something in it that makes some people "crawl all over"; and, knowing this, we fear that it must be up-hill work to make such a subject interesting to our young readers. Within the past year a neat little book has been published on Spiders, ("The Structure and Habits of Spiders," by J. H. Emerton, Salem, Mass.); and we shall draw upon this for facts and illustrations. The Spiders form a family of animals somewhat closely related to *insects*, the beetles, butterflies, etc., on the one side, and crabs and lobsters on the other. Spiders have eight legs—enough for two

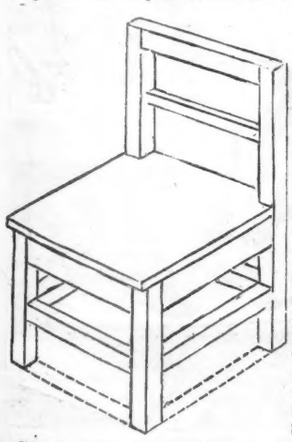


Fig. 6.—STRAIGHT-BACK CHAIR.

cows or four boys—and the same number of eyes. How strange a cow would *look* with eight eyes, and what a terrible thing to see an owl would be if we should increase its great "lookers" four-fold! In figure 1 is shown the common Grass Spider, which constructs such beautiful cobwebs upon the wheat stubble, and over the pastures which are so plainly seen on a damp morning in autumn, and considered by the weather-wise to be a sign of fair, or rainy, weather, we forget which. The long legs, four pointing forward, and four backward, are easy to see, but that they are jointed much as our fingers and toes needs closer looking. The eyes are small, only two of which can be seen in the figure, as little dots on the end of the head. The spider's head is a very pretty sight under the microscope, as it is furnished with various parts, among others the jaws and teeth for chewing its food, and the gland or sac, which furnishes the irritating fluid which stings when a spider has bitten in self-defense. When we were a boy—like many another farmer's son, we had an "every-day" and a Sunday pair of boots—one Sabbath the church exercise was of little or no interest to us on account of the itching of an instep, and matters grew no better until we quietly removed the boot, which was no easy task right in church (Sunday boots get pretty tight some times before they are turned over for "every-day"), and a spider jumped out and was glad to get away. Spiders *do* bite, but in most cases only their regular food—as flies and other insects—when cornered, as the one was in the boot, they will show fight. Great stories have been told of the bites of spiders, but probably they are largely untrue, as are those in which the bite has been cured by music. Spiders are not so bad as many would make out; they have a great deal of *heart*. Figure 4 shows the bigness and also the shape of a spider's heart. It is a *great* heart you may think. Perhaps the most interesting feature of spiders is their spinning machines, by means of which a thread is spun so fine that it would take 7,000 of them, placed side by side, to make an inch, while a thread reaching around the earth would weigh less than a pound, and yet one of these threads is made up of a number of smaller ones. The spinning is done by the *spinnerets*, which are situated at the back end of the body, and in some kinds of spiders (fig. 1) project outward considerably. Figure 3 shows a highly magnified view of the spinnerets as seen under a magnifying glass. The spinning organs, which resemble four burs somewhat, in the engraving, are made up of a cluster of tubes, a single one of which is shown in figure 2, and out of these the soft sticky material is forced by the spider. As the thread passes out it unites with the others, and, soon hardening, becomes a tough, flexible, and smooth thread, up and down which the spider can run. The hind legs often help in the spinning by pulling the threads out of the spinnerets, hand over hand (leg over leg) as it were.

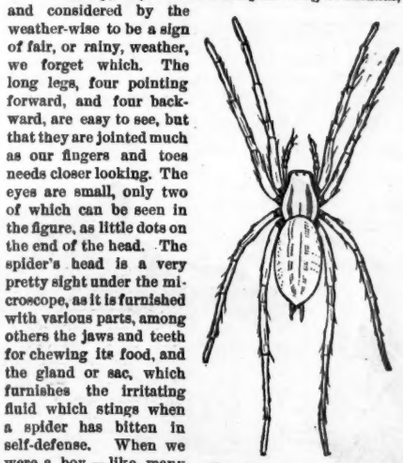


Fig. 1.—GRASS SPIDER.

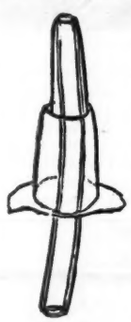


Fig. 2.

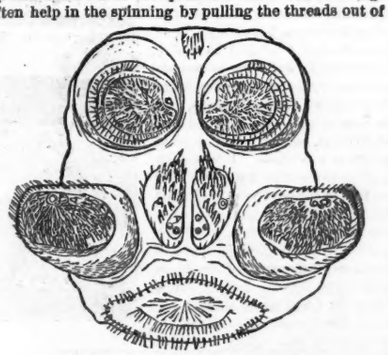


Fig. 3.—SPINNERETS, MAGNIFIED.

Spiders often descend very rapidly by spinning out the thread by which they hang, stopping almost instantly—and starting again, when they sometimes get the right swing, and land far to one side. Next to the spinning machine in interest are the webs which the spiders weave out of their threads. They show great skill and calculation in the construction of their webs, and an equal degree of fortitude and perseverance when the web is broken or some other trouble is in the way. The lesson of "Try, try again," which Robert Bruce is said to have learned from the spider in the barn led him to final victory over the English, and set Scotland free from the tyranny of King Edward. We could all learn much from these despised spiders which might lead us to as great a triumph (though in a different way), as Bruce gained at Bannockburn. A spider's web often lasts a whole season, but, like a fisherman, he must keep good watch of his net and mend it frequently. Nearly all web-spinning spiders live *under* their webs, with backs downward—upside down to us—but as they can hardly walk "right side up," it must be all *right* to them.

Fig. 4.—SPIDER'S HEART.

The webs are of many different shapes—sometimes in the form of a dome, in the center of which the spider resides, and is ready to rush out at any moment when a fly or other insect is caught. The round webs are the most common—and altogether too common—in the corners of rooms, about old barns, and many other places. An illustration of these familiar webs is given in figure 5, not because it will be new to many of you, but to show how the spinner makes its net. The spider first spins a line across the place chosen for the web, then returning on it to the middle, another line is attached, and as it runs to the end of the old line, the new one is spun out, holding it away from the old one by the hind legs, when it is fastened some distance from the first, thus making another *ray* or rib. In this way the framework is constructed, consisting of threads running from the center to the outside, like rays of an umbrella. The spider next puts in the cross lines by climbing across from one ray to another, as it is seen to be doing in the illustration. After the web is finished, a thread is connected with it and the nest, and the spider keeps its feet upon this

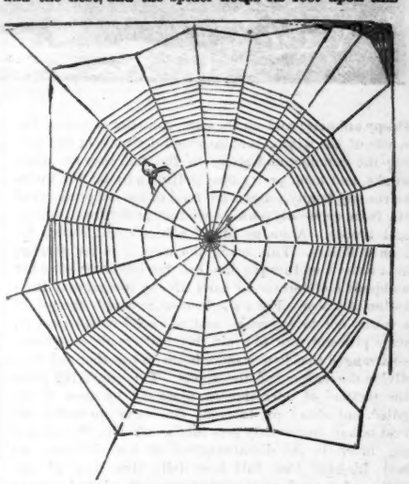


Fig. 5.—A COB-WEB.

while in its nest, to feel when anything is caught—just as the boy knows when a fish is at his hook by the *feel* of the line or pole—a sort of telegraph which brings good news to the spider, but a death message to the unsuspecting fly which has lucklessly walked into the parlor of the crafty, cunning, sly, and watchful spider.

How Bears Go to Market.

In the early days of our country—and it was not very many years ago—bears were more common than now. They were the terror of the children, so that even to the present day, in the older settled parts of the United States, the word bear has much of its old *eat-you-up* meaning clinging to it. Children are sometimes frightened by thoughtless persons, who ought to know better, by: "O! there is a *bear*," or "Look out, the *bears* will eat you up." We shall never forget how much pain some one once caused us by jumping out suddenly, with a savage growl, from a dark bush by which we were passing with a pail of milk. He, it may be, remembers the scene, though it was too dark for much to be noticed, and as for the milk—well! the cows did not give much that night, even though it was late. Bears are very strange animals, and along with their savage nature they possess a sagacity, or shrewdness, that makes us admire as well as distrust their actions. As a general thing,

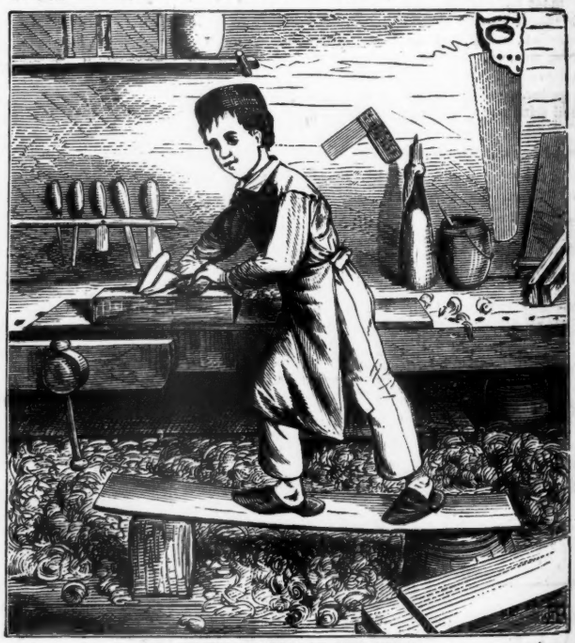
people are slow to grant that dumb beasts have much wisdom; but the more we observe the doings of animals the more we are convinced that this notion is incorrect. Bears can be sharp with their wits as well as their claws. Some who have seen bears, think they are

THE BEARS AT THE PIGS' HOME.

sleepy animals; and so they are, sometimes giving the whole of the winter months to solid slumber; but during the summer, and along in the fall, they are wide-awake, and keep pretty busy getting a living for themselves and family. Bears are fond of several products of the farm, especially pork, which they prefer fresh, young, and tender. A young pig is a bear's first choice for a meat dinner. This being the case, it is not strange that many a mother pig has had her offspring leave her suddenly and forever in early life, by the *pressing* invitation of a bear. For a single bear to invade the pen of a stern—not to say cross—and powerful sow, is not always pleasant, and, to avoid this, matters are sometimes so arranged that two or more bears go together and thus divide the danger and the spoils. The engraving gives the method of operation as practised by these thick-pated but sharp pig-thieves. One bear—probably the best talker—apparently gets into a talk with the mother pig, much to the dissatisfaction of her children; we may imagine that this bear tells Mrs. Sow of the duties of a good mother, and how she should always provide a plenty for her little ones; and as the conversation gets exciting, as such talks always will, a third party settles the difficulty—so far as the visitors are concerned—by capturing a pig unnoticed by its real owner. This is not courage, but strategy, and the worst kind of stealing combined. The only commendable feature in the whole transaction is the acuteness with which the end is reached. It will probably be a long time before bears will be looked to as models of uprightness, even though they may walk upon their hind limbs. They embrace every opportunity to get along—and sometimes a man is the opportunity. The time will soon come when bears will be seldom seen, except in such places as Central Park, and the menageries which go through the country, such shows would lack one of their greatest features, in the eyes of the boys and girls, if they did not have at least a couple of big bears and a little one or two.

The Young Carpenter.

If an American boy, at least an American *farmer* boy, can have the run of a work-shop—especially if it is well supplied with tools, and he can have a free use of them—he is happy. There is in the head of nearly every young American a desire to "make things," and this desire needs but a little encouragement, or even an opportunity to develop, and there is sometimes an inventor "born to the world." I wish every farmer had a first-rate shop in which were all the tools that a farmer ought to possess, and in it, on many a rainy day, the boys could be amused, instructed, and employed. Edge-tools are dangerous things, but to recommend not using them at all is like trying to learn to swim without going into the water. It is not necessary that a little child should have the broad-axe to work with; there is the hammer and a few nails, and some pieces of boards; take those and let him build what he can—hammer away, have a good time, learn how to drive a nail, how to pull out and drive it again. It is with a mixture of pleasure and regret that I recollect, and it was several years ago, the first big thing that I tried to make in the shop. It was not a mowing-machine, or a steam-engine, or a "perpetual motion,"—I had thought of that, and what boy has not!—but simply a new kind of a wagon jack. You perhaps know very well that wagon jacks are very handy things, but people often expect too much of them—they think that when made *just the right way* but little work is needed to raise the wheel. Now-a-days this machine is quite perfect—and if you have been to the fair, as I hope you have, several, all *the best*, were seen. Well! I had the wagon jack fever very soon after I had got along so far as to be able to use the *draw-shave* and *hand-saw*, and, like too many inventors, I had but a poor idea of what I wished to make, other than a "Jack" must be constructed. All sorts of figures were drawn on all sorts of boards, and various pieces were whittled and shaved out, but for a time no great progress was made. It was such a great thing that I was working on that of course no one else must be let into the secret—not even the other boys. They could see me busily cutting, whistling, and planning, but none of my ideas were to be for their benefit. How carefully I hid away every piece as it was completed—and many a piece there was. As I now look back, I have to laugh at the strangeness of the machine. None like it has ever been seen, and I probably never shall see one working on the same principle. I could not describe it to you, and to have the artist make a figure is entirely out of the question. I will simply say it had a number of cog wheels, or was to have, and a crank and a long iron bar, several adjustable pins, a catch—yes, there was a *catch* in it, and a very large one too—together with a side-wheel motion. The machine was named before it was made, and was to be patented and sold as: THE NEW AMERICAN DOUBLE ADJUSTABLE CIRCULAR MOVEMENT WAGON JACK. It was reasonable to suppose with such a good name it would sell; and dreams of large wagon loads of these "Jacks" going out of my factory to supply a great want, almost made me wish I did not have to do *ordinary* farm chores, like bringing in the wood and splitting the kindlings. It did *sell*, and when the men folks caught me trying my rough, half-finished model on the light buggy, they were so overcome that I burst into tears, and my grand scheme *exploded* too. This was a heavy blow to me, but with a few kind words of encouragement I started off on another track; a squirrel cage, a writing-desk for sister, or some other such thing, and was probably strengthened by the great trial through which I had passed. I lay much stress on encouraging words from those older than ourselves, followed now and then by a helping hand. If a father can help his son fix on the cover to his kite, or assist in riveting the tongue-irons to the little wagon, the boy is made happier than if he gave him something that cost money, instead of a few minutes. The artist has given us a view of a carpenter's bench, well equipped with tools, at which a boy is making the most of the situation and his time. There is the same trouble with this bench as with all others not made for boys—it is too high; but the youngster has overcome this by placing a board along the side, resting the ends upon a block and tub—I hope he will not injure the tub—and is making a fine lot of shavings with the plane, and doubtless is working for more than the chips he makes. At a guess it is a chicken coop, which is to be ready by next Thursday, when "Beauty" is expected to come off with a full brood of little chicks. What large slippers the boy wears! and here I am called upon to guess again, for the artist is not at hand, and I can not ask him why it is so. The boy has been playing in the wet, or has been on an errand, and has got his boots wet through, and while they are drying behind the stove he has slipped into his father's slippers, and has slipped out into the shop, and is slipping the shavings off of the board. I guess, also, that he has no stockings on. How many see anything that would suggest that this shop is used in the evening is a great wonder to



THE YOUNG SHAVER AT THE BENCH.

UNCLE HAL.

A SAVING of 25 to 33 per cent of customary outlays can be effected by use of the Asbestos Liquid Paints, which are the purest, finest, richest, and most durable Paints ever made for structural purposes. Samples of sixteen newest shades for dwellings sent free by mail. H. W. Johns Manufacturing Co., 87 Maiden Lane, N.Y., Sole Manufacturers.

BUSINESS INDUSTRIES.—Hon. Daniel F. Beatty, Mayor of Washington, N. J., the renowned piano and organ man, has broken ground on one of the most commanding sites in that city for an immense factory. Machinery of the latest description is being rapidly finished, and ere long there will be turned out from his factory an average of twenty-five instruments per diem. This will barely enable Mayor Beatty to about keep pace with his orders, as his business these early fall months has trebled his anticipations. He is an illustration of the self-made men of this country.—*New York World.*

FINE TEAS supplied to *consumers* at prices *lower than ever known before.* These *fine qualities* seldom reach the interior, being sold only in large cities and among the very wealthy. Send for *reduced price-list*, and compare with other houses.

CONSUMERS' IMPORTING TEA CO.,

P. O. Box 4236. 8 Church St., N. Y. City.

The Best, the Cheapest.

GENUINE WALTHAM WATCHES

IN SOLID GOLD AND SILVER CASES ONLY.

NO BRASS, NICKEL, OR PLATED CASES ARE EVER SOLD BY US.

PRICES GREATLY REDUCED.

Silver Key Winders, **$9.90**.....former price, **$13**
Silver Stem Winders, **$13.70**.....former price, **$18**
Gold Key Winders as low as..... **$38**
Gold Stem Winders as low as..... **$50**

Write for our PRICE LIST, which describes all the various grades and sizes, with prices of each, and explains our plan of sending Single Watches without risk to any part of the country, no matter how remote. Address

HOWARD & CO.,
261—5TH AVENUE, NEW YORK.

We send the Price List free of postage to all who write for it, except to those who want to act as agents or those who ask for discounts. We have no agents, and make no discounts whatever

ASK YOUR WATCHMAKER FOR

A KEY THAT WILL WIND ANY WATCH

AND NOT WEAR OUT.

By mail 50c.—**AUTOMATIC** Eye Glass Holder, by mail 25c.—**Birch's Pat. Key Ring**, 10c.—Circulars free.
J. S. BIRCH & CO., 38 Dey St., N. Y.

THE
AMERICAN SUBMERGED PUMP

IS A DOUBLE-ACTING, NON-FREEZING

FORCE-PUMP.

Will draw water from 1 to 100 feet, with one-man power, and also force water to any required distance.

Prices, complete,

$15 to $75.

RUBBER HOSE,

For Garden Purposes, at manufacturer's prices.

Wakefield, Perfection, and Peerless

EARTH CLOSETS

Are the Best. **Prices, $6.50 to $40.**

Address

HENRY H. B. BLOOMFIELD,
34 DEY STREET, N. Y.

Improvement for 1879.

THE SAFETY HOT BLAST OIL STOVE.

☞ Does not heat the house. Perfect for all kinds of Cooking and Heating Irons. Always ready and reliable. The most satisfactory Stove made and the Cheapest. ☜ Send for circulars.

The Whitney Manuf'g Co.,
1123 CHESTNUT ST., PHILADELPHIA.

CAUTION!—The great popularity of, and increasing demand for our "Automatic" Sewing Machine induces unprincipled agents to deceive customers by claiming, for their old pattern machines, automatic and other features belonging exclusively to us.

THE
"New Automatic"
or "NO TENSION" Silent Sewing Machine

Differs in all essential respects from every other Machine! Only Machine without a Tension, and Bobbin or Shuttle!—Only really Light-Running Machine!—Only Machine with Stitch-Regulator!—Easiest to Work!—Fastest!—Makes Strongest Seam!—Absolutely without Danger to Health!

As it is impossible to convey by advertisement an idea of the unique and wonderful features of this Machine, we solicit **DIRECT CORRESPONDENCE** from all persons owning or about to purchase a Sewing Machine, and will carefully and promptly reply to all communications.

Address, **WILLCOX & GIBBS S. M. CO., 658 Broadway, New York.**

DRESS GOODS,
SILKS,
SHAWLS,
LINENS,
COTTONS,
UPHOLSTERY,
TRIMMINGS,
FLANNELS,
GLOVES,
HOSIERY,
Girls' and Boys' Suits,
Ladies' Underwear,
Infants Outfits,
DRESS MAKING,
WRAPS,
COSTUMES,
RIBBONS,
NECKTIES,
RUCHINGS,
HANDKERCHIEFS,
WHITE GOODS,
BUTTONS,
HAMBURGS,
SKIRT BRAID,
SEWING SILK,
PINS,
FRINGES,
NEEDLES,
FANCY GOODS, &c.

DRY GOODS
BY MAIL.

OUR MAIL ORDER DEPARTMENT is thoroughly systemized, and you can do your shopping just as **readily** and **satisfactorily** as if you were in our store. **Samples** and **full** information sent **promptly.** Prices **just** the same as if you bought in **person.** We carry an **average** stock of nearly a **HALF A MILLION OF DOLLARS, all** bought for **cash.** Having nearly **thirty years'** experience, we can *guarantee entire satisfaction.* Drop us a postal-card, saying what you want, and satisfy yourself how **cheaply** and **quickly** you can get every thing in **Dry Goods** and **Notions** of us by mail or express.

COOPER & CONARD,
Importers and Retailers,
NINTH AND MARKET STS.
(Three adjoining Stores),
PHILADELPHIA, PA.
Established 1852. Mention this paper.

Toes Protruding!
Soiled Stockings!

SHOE BILLS DOUBLE IN AMOUNT WHAT THEY NEED BE.

All these ills prevented by purchasing for children's wear either the A.S.T.Co

BEAUTIFUL BLACK or SILVER
TIPPED SHOES.

H.W.JOHNS' ASBESTOS
LIQUID PAINTS

are the purest, finest, richest, and most durable paints ever made for structural purposes.

☞ A saving of from 25 to 33 per cent of customary outlays can be effected by use of the Asbestos Liquid Paints. Samples and full particulars will be sent free by the H. W. Johns Manufacturing Company, who are the most extensive manufacturers in this line in the world.

See Notice of **"Asbestos Liquid Paints"** *in Am. Agriculturist, page* 132, *April number*, 1879.

Send for Samples and Descriptive Price List.

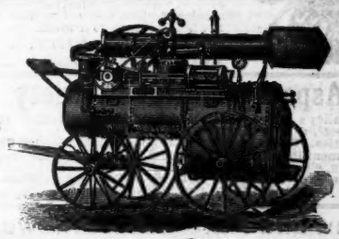
H. W. JOHNS M'F'G CO.,
87 Maiden Lane, New York.

Sole Manufacturers of **Genuine Asbestos Roofing, Boiler Coverings, Steam Packing, Sheathings, Cements, Coatings,** etc.

CENTENIAL AND GRAND PARIS WORLDS FAIR PRIZES AND ALL THE U.S. STATE FAIR PREMIUMS IN 1877 & 1878.
PRICE, $350.
PUTS FROM 10 TO 12 TONS IN A CAR
PRICE, $300.
REQUIRES LESS HELP
AND BALES TWICE AS FAST AS ANY OTHER PRESS
PRICE, $175.
THE BALE IS PATENTED AND SELLS FOR MORE MONEY
ADDRESS FOR CIRCULAR
E. P. K. DEDERICK, & CO. ALBANY, N.Y.

Employment for Ladies and Young Men

in their own townships, in selling **Perfect Butter Color**; but one agent in each town. Apply to
L. E. RANSOM, 34 Maiden Lane, New York City.



Steam - Engines.

More effective and more complete, and more readily adapted to the various mechanical and agricultural uses than any other in the market. Practical improvements accumulated from twenty years' manufacturing experience, with reputation maintained and success established.

Send for Circulars, descriptive, and containing testimonials concerning our **PORTABLE and AGRICULTURAL STEAM-ENGINES.**

WOOD, TABER & MORSE, Eaton, Madison Co., N. Y.

The ESTEY ORGAN
THE WORLD OVER
IS THE BEST!
MANUFACTORY BRATTLEBORO, VT.

FREE.

Send your address on postal card for a free copy of the best family newspaper published. A paper that every farmer ought to take.

Address **DOLLAR WEEKLY TIMES,**
CINCINNATI, OHIO.

BEAUTIFUL FLOWERS
FOR
Winter and Spring.
CHOICE COLLECTIONS.
HYACINTHS, CROCUS,
TULIPS, LILIES,
NARCISSUS, &c.

Our beautifully illustrated Catalogue of the above, with full directions for culture, to which is added a list of *Small Fruits—Winter Flowering Plants* for house culture, *Agricultural Seeds* and *Garden Requisites*—72 pages, mailed to all applicants.

B. K. BLISS & SONS,
P. O. Box No. 4129, 34 Barclay St., New York.

Bulbous Roots.

Our New Autumn Catalogue of DUTCH BULBS, PLANTS and SMALL FRUITS, beautifully illustrated, is now ready, and will be mailed to all applicants. It contains a complete list and represents a large, well-grown and selected stock. Our Flower Seed List will be found replete with the best strains of Primula, Calceolaria, Pansy, Smilax, Apple Geranium, and other **Florist's Seeds** of new crop.

HENRY A. DREER,
Seedsman and Florist,
714 Chestnut St., Phila.

E. P. ROE
has the largest stock in the country of the
CUTHBERT RASPBERRY,
now generally admitted to be the finest red raspberry before the public. Also all the other new and leading kinds. Grape Vines, Currants, Gooseberry and Blackberry plants.

Fall is the best time to plant, and if done according to my Manual, almost double growth is made the following year.

STRAWBERRY PLANTS.
November is the time to plant in the South. Catalogue free. Address **E. P. ROE,** Cornwall-on-Hudson, N.Y.

HEADQUARTERS FOR
CUTHBERT RASPBERRY
and **Glendale Strawberry.**

A complete assortment of *Good Old* and *Choice New* varieties of **Strawberries, Raspberries, Blackberries, Gooseberries, Grapes, Currants.** My descriptive catalogue, with full cultural instructions, a colored plate, and prices that can not fail to please, *free to all.*

J. T. LOVETT,
Little Silver, Monmouth Co., N.J.

Asparagus---New Variety.
Smalley's Extra Early Defiance; 2 weeks earlier than Colossal, a larger, softer grass; far superior to all other varieties. One acre will produce more grass with the same treatment than 2 acres of Colossal. It is the best Asparagus grown, either for private use or for market. Two-year-old plants, $5 per 100, $30 per 1,000; seed $10 per lb. Address
A. SMALLEY, BOUND BROOK, BOX 99, N. J.

New and Rare Winter Flowering Plants.—New Fruits, Dutch Bulbs, &c.
New Pears, new Peaches, new Cherries, new Grapes, new Strawberries, &c., with a large stock of all kinds of Fruit trees, shrubs, &c.

DUTCH BULBS.—Large importations direct from the leading growers in Holland. First quality Bulbs. Beautiful Hot-house plants, Dracænas, Crotons, &c. Winter flowering plants, Roses, &c., well grown. Cheap by the single plant or doz., by mail or express. Catalogues mailed to applicants. **JOHN SAUL, Washington, D. C.**

3 Great Novelties.
Two of Rickett's SEEDLING GRAPES,
HIGHLAND, Black,
ELDORADO, White,
—AND—
BASSETT'S PLUM, Curculio Proof.
A. HANCE & SON, Red Bank, N.J.

GRAPE VINES.
Also **Trees, Small Fruits, &c. Wholesale rates very low** to Nurserymen, Dealers, and large Planters. Send stamp for Descriptive List. Price List **free.**
T. S. HUBBARD, Fredonia, N. Y.

GRAPES
Prices lower than ever. Largest Assortment of **old** and **new** varieties. Plants of **best Quality;** at doz. rates **free by Mail.**
Send for Price List. Address
BUSH & SON & MEISSNER,
BUSHBERG, Jefferson Co., Mo.

BOWKER'S
AMMONIATED
FOOD FOR FLOWERS.
Odorless, clean, gives healthy growth, and abundant flowers. Trial packages by mail, postage paid, 20c. and 35 cents. Sufficient for 20 plants for 3 or 12 months; containing also a little book, "How to Cultivate House Plants," by Prof. Maynard, of the Mass. Agricultural College. AGENTS WANTED.
BOWKER FERTILIZER CO., Boston or New York.

What Farmers Want.
They want Pure Ground Bone! Why—because it contains those elements taken from the soil in the grain and carried away, thus impoverishing the land. Pure Premium Bone, made of dry, hard, unsteamed bones, supplies just this waste, as every farmer can learn by practical experience at a trifling cost. Send for a full explanation of how it works.
Excelsior Fertilizer Co., Salem, Ohio.

MATTHEWS' SEED DRILL
The Standard of America.

Admitted by leading Seedsmen and Market Gardeners everywhere to be the most perfect and reliable drill in use. Send for circular. Manufactured only by
EVERETT & SMALL, Boston, Mass.

NEW HARDY PLANTS

in large and remarkable variety, including the
JAPANESE MAPLES.
Rhododendrons, Hardy and Greenhouse Azaleas, Camellias, Roses, Purple Beech, in large quantities.
Also a complete assortment of Fruit and Ornamental Trees, Shrubs, and Vines.
Price Lists **free.** Descriptive Catalogues 10 cents.
PARSONS & SONS CO. (Limited),
Kissena Nurseries, Flushing, N. Y.

100 Acres Planted with **BERRIES.**
Plants Grown FOR Transplanting, AND Fruit for Market.
See new Catalogue and what sorts to plant. Sent free. Address
100 VARIETIES Selected FRUITS.
JOHN S. COLLINS, Moorestown, N. J.

BERRIES
Queen of the Market.
The largest, handsomest, best hardy **Red Raspberry,** three inches around: **Pot Grown Plants** from healthy root cuttings, worth double the usual out-door suckers. Sent post-paid by mail, **$2.00 per dozen.** Catalogues free.
W. PARRY,
Cinnaminson, N. J.

1,000,000 SHARPLESS Strawberry Plants, pot-grown or from open ground. Noted for its *great vigor, productiveness, large size, and best quality for market and family use.* Get plants direct from Central Pennsylvania, "the home of the Sharpless," and be sure they are genuine. Descriptive Price List of this and other varieties free. J. L. DILLON, Florist, Bloomsburg, Pa.

THE BEST, old and new, large and small Fruits; Shade Trees, Shrubs, Vines—everything worth growing. NEW BRUNSWICK (*Nurseries*), N. J. EDWIN ALLEN.

CHOICE STRAWBERRY PLANTS.—Descriptive Price List free to all.
S. C. DE COU, Moorestown, Burlington Co., N. J.

Berries—Largest and Best.
Longfellow, Warren, Huddleston's Favorite, Black Giant, Sharpless, Cuthbert, and Queen of the Market.
POMONA NURSERY.—100 acres devoted to Small Fruits. Price List free. Send 3c. stamp for colored illustrations and testimonials. WM. PARRY, Cinnaminson, N. J.

Early Prolific and Reliance,
the **most certain** and **best paying** Market Raspberries, 12 acres now in bearing on our grounds. **150,000** plants for sale. **200,000** Cinderella, **200,000** Continental, **200,000** other fine varieties of Strawberries, including **Sharpless, Miners, Glendale,** etc. Lots of other good things. Prices low. See new descriptive circular.
GIBSON & BENNETT, Woodbury, N. J.

800,000 NO. 1 PEACH TREES.
Over eighty varieties. Among which can be found kinds suited to all sections, including all the new and old standard sorts. Also 300,000 Apple Trees, 200,000 of them extra long-keeping varieties, adapted to Southern planting or wherever long-keeping apples are desirable. I also offer a full line of all kinds of Nursery stock at prices to suit the times. Apple and Peach Trees sent by mail to all sections. Catalogues showing how and what to plant, with much valuable information, mailed *gratis* to all applicants.
RANDOLPH PETERS, Great Northern and Southern Nursery, Wilmington, Del.

ONE MILLION
WINTER-FLOWERING
Plants AND Bulbs
Apply by letter for "Special Low Priced List," in which will be found Instructions for Culture.
Peter Henderson & Co.
35 Cortlandt Street, New York.

800,000 LILIES OF THE VALLEY (all with flowers; very good for forcing. First quality ₰ 1,000, 36sech.) Grand Culture of Bulbs. GUSTAV A. SCHULTZ, BERLIN, O. (Germany), ECKARTSBERG.

IF YOU WANT ROSES, GERANIUMS, AND New Type of Coleus, 14 for $1.10, send 25 cents for 4 samples and see. They are cheap, but as good as the best. Lists free. See advertisement, page **396.**
TYRA MONTGOMERY, Mattoon, Ill.

THE DINGEE & CONARD CO'S
BEAUTIFUL EVER-BLOOMING
ROSES
We deliver **STRONG POT ROSES** for Winter Bloom and Fall Planting, *safely by mail,* at all post-offices. Five Splendid Varieties, *your choice,* all labeled, for **$1; 12** for **$3; 19** for **$3; 26** for **$4; 35** for **$5; 75** for **$10; 100** for **$13.** Send for our **New Guide to Rose Culture,** and *choose from over* **500 Finest Sorts.** Our **Great Specialty** is growing and distributing Roses.
THE DINGEE & CONARD CO.,
Rose-Growers, WEST GROVE, CHESTER CO., PA.

SEEDS. Cabbage Seed a Specialty.
Wholesale Price Lists—for dealers only—mailed free.
FRANCIS BRILL, Seed Grower, Mattituck, Long Island, N. Y.

WINTER FLOWERS
We will send, free by mail, and guarantee arrival in good condition,

8 *Fine Hyacinth Bulbs* for	$1
or 20 *Fine Tulip Bulbs* for	$1
or 10 *Fine Tulip* and 4 *Hyacinths*	$1
or 8 *Roses, Fine Winter-Blooming*	$1
or 4 *Roses* and 4 *Carnations* for	$1
or 8 *Fine Geraniums, 8 sorts,* for	$1
or 2 *Camellias* and 2 *Azaleas* for	$1
or 8 *Carnations, 8 sorts,* for	$1

26th Year. 400 Acres. 15 Greenhouses.

Everything in the Nursery line.	
10 *Grape Vines, 5 sorts,* for	$1
25 *Raspberry, 5 sorts,* for	$1
12 *Gregg Raspberry* for	$1
80 *Strawberry Plants, 4 sorts,* for	$1
20 *Sharpless Strawberry* for	$1
10 *Currants, 3 sorts,* for	$1

Remit by P.-O. order, draft on New York, or in registered letter. Send your address for Catalogue free.
STORRS, HARRISON & CO.
Painesville, Lake Co., Ohio.

FAIRVIEW NURSERIES,—200 Acres, Established 1835. Genuine stock, and low prices. 50,000 first-class Peach Trees. Full assortment of Fruit and Ornamental Trees, Vines, Plants, etc. Miner's Great Prolific and Sharpless Strawberry Plants. Small Fruits a specialty. Price list free. Address J. PERKINS, Moorestown, N. J.

PEAS for Seed.
Canada Grown—Leading sorts—pure stock—and low prices—wholesale only. Special price lists now ready.
Address FRANCIS BRILL,
Mattituck, Long Island, N. Y.

TO NURSERYMEN.
Southern Natural Peach Pits for Planting. Address
C. B. ROGERS, Seedsman, No. 123 Market St., Phila., Pa.

TREES! TREES!! TREES!!!
New England Trees for New England soil. Over 100 acres of the finest nursery stock in this country. 200,000 Apple Trees, 100,000 Peach Trees, and a full assortment of other Nursery Stock. Also 100,000 Apple Seedlings, 1 and 2 years. Address STEPHEN HOYT'S SONS, New Canaan, Ct.

Peach Trees for everybody. Apples adapted to a wide range of climate. Small Fruits, etc. Price-list free.
R. S. JOHNSTON, Stockley, Del.

FARMERS AND OTHERS
having spring or running water can have the water conveyed to their premises by using a Hydraulic Ram. More than 800 different styles. **Lift and Force Pumps, Hydraulic Rams, Etc.**
Send for circular and prices.
RUMSEY & CO.,
Seneca Falls, N. Y., U. S. A.

HALLADAY
STANDARD WIND MILL.
VICTORIOUS AT
Phila., 1876—Paris, 1878.
35 Years in Use.
GUARANTEED SUPERIOR
To any other Windmill Made.
17 Sizes—1 Man to 45 Horse Power.
Adopted by the leading R. R. Co.'s and by the U. S. Govt. at Forts and Garrisons.
$3,500,000 worth now in Use.
Send for Catalogue "A."
U. S. Wind Engine & Pump Co.,
Batavia, Ill.

THE CHAMPION
Is the Best Wind-Power in the Market.
Is perfectly self-regulating, runs no faster in a gale than in a light wind, is very powerful, and never blows away while the tower stands.
We also manufacture the **Iron Screw Wind Mill,** and the Celebrated **Star Wood Pumps,** with porcelain lined iron cylinders, wood eave-trough, tubing, etc., etc.
Send for Catalogues.
POWELL & DOUGLAS,
Waukegan, Ill.

We manufacture the old reliable **Stover**—the well tried, strong, durable, self-regulating, solid wheel **Wind Mill,** which took *the* Centennial Diploma, as well as a Medal. Others may talk, but we refer to the **Official** Centennial Report. Also O. E. Winger's Improved $20.00 Oscillating Feed Grinder, which is operated by 10 and 12 ft. Pumping Wind Mills—a novel and perfect Mill for grinding all kinds of grain for stock and house use. Agents wanted everywhere. Branch factory at Greencastle, Pa. Send for catalogue to
STOVER WIND ENGINE CO.,
Freeport, Ill., U. S. A.

BUY THE BEST.
Myers' Improved Wind Mill
The Mill has a solid wheel built expressly to stand any storm, and when in motion moves as regular as a steam engine. **Perfectly balanced** on the derrick in or out of gear. Pronounced by the best mechanics to be **superior to all other Mills.** No farmer, stock-raiser, or dairyman should be without one for pumping water for stock, grinding feed of all kinds, churning, and many other purposes. Send for a full descriptive circular.
SILVER & DEMING Manuf'g Co., Salem, Ohio.

HEEBNER'S HORSE POWER
WITH
PATENT LEVEL TREAD
AND
SPEED REGULATOR.
Heebner's Improved Threshing Machines. Send for Illustrated Circulars to
HEEBNER & SONS, Lansdale, Mont Co., Pa.

Lion Feed Cutter,
combining the latest best improvements. Also
Gale's Feed Cutters,
both cylinder and lever, and
Belcher & Taylor's Root Cutters.
For full description send for illustrated catalogue and price list. Address
THE BELCHER & TAYLOR AG'L TOOL CO.,
Chicopee Falls, Mass.

RAMS.
The Double Acting Rams open the valves as well as shuts them with the power of the water. No stopping. C. HODGKINS & SON, Marlboro, N. H.

Hardy Perennial Flowers.
WOOLSON & Co., Passaic, N. J., who make a specialty of Hardy Flowers, would call attention to the fact that the autumn is the best season for transplanting the majority of these plants. Among a large number of specially desirable kinds they offer
The Japan Irises, *Iris Kæmpferi.* These are quite different from the common Irises, and present a large and attractive variety. Each 25c. Per dozen, $2.50.
Garden Phloxes.—The best varieties selected after testing over 200 kinds. Each 25c. Per dozen, $2.00.
Lilies, Tulips, and many other rare and showy bulbs, should be planted in autumn.
Hardy Climbers, Choice Shrubs, Hardy Ferns, and other plants, sent safely by mail to all parts of the country.
Our collections of European Irises and of species of Phlox are large and varied. For these and a very full list of other Hardy Perennials, send for our descriptive Catalogue of 80 pages, which is mailed free on application to
WOOLSON & CO., P. O. Box 180, Passaic, N. J.

WELLS, RICHARDSON & CO'S
PERFECTED BUTTER COLOR
Gives Butter the gilt-edge color the year round. The largest Butter Buyers recommend its use. Thousands of Dairymen say IT IS PERFECT. Ask your druggist or merchant for it; or write to ask what it is, what it costs, who uses it, where to get it. WELLS, RICHARDSON & CO., Proprietors, Burlington, Vt.

THE AMERICAN BARB FENCE.

The cut shows exact size of strand and distance apart of the barbs. The only barb wire not cruel to animals. The only one sold by the Rod. SAMPLES AND CIRCULARS SENT FREE.
F. C. TAYLOR, Gen'l Agent, 60 Clark St., Chicago, Ill.

THE BELLE CITY
FEED CUTTER.
The Best Feed Cutter in the World.
The only one that runs light enough for Wind-Power.
Send for circular, references, &c. Name this paper when you write.
DAVID LAWTON, Manufacturer, Racine, Wis.

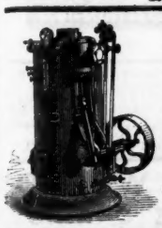
APPLE GRATER.
First-class in every respect; has iron cylinder, iron frame, steel knives, adjustable concaves, and is not surpassed for quantity or quality of work. *Price reduced to* $40.
For catalogue of cider machinery and other information, valuable to cider-makers, address
BOOMER & BOSCHERT PRESS CO.,
Syracuse, N. Y.

Montgomery's Improved Rockaway Fan.
222 First Premiums. 15 Silver Medals.
Gold Medal at Md. Institute in 1878,
and 15 First Premiums at other Fairs.

No good Farmer can afford to be without one of these Fans! This universally known Fan has been victorious in every contest, and has the approval of thousands of Farmers all over this country. It is the best and cheapest Fan made for the farmer and planter. It is the only Fan that will effectually take out of wheat the great Virginia trouble "Partridge Pea." Prices reduced. Send for circulars and price lists to the manufacturers.
DORSEY, MOORE & CO.,
68 S. Calvert St., Baltimore, Md.
Manufacturers and Dealers in Standard Goods, Gen'l Agts. for Cornell Shellers, Big Giant Corn and Cob Mills, Studebaker Wagons, &c.

NONPAREIL
FARM & FEED MILLS
The Cheapest and Best.
Will Crush and Grind Any thing.
Illustrated Catalogue FREE.
Address L. J. MILLER, Cincinnati, O.

To Manufacturers of and Dealers in Wagons.
We invite your attention to the new Single Lever Wagon Brake Lock, which is far superior to any lock now made. It is simple, neat, strong, durable and cheaper than any other lock in the market. Manufacturers of Wagons furnish "The Boss" on Wagons when ordered by dealers. Send for Sample. Try it and satisfy yourself.
For price and terms address
The Wisconsin Single Lever Lock Co., Racine, Wisconsin.


Bookwalter Engine.
Compact, Substantial, Economical, and Easily managed. Guaranteed to work well and give full power claimed. Engine and Boiler complete, including Governor, Pump, &c., (and boxing), at the low price of
3 Horse-Power... $215.00
4½ " " ... 245.00
6½ " " ... 315.00
Put on Cars at Springfield, Ohio.
JAMES LEFFEL & CO.,
Springfield, Ohio,
or 109 Liberty St., New York City.

POROUS DRAIN TILE.
2 to 7 in.

For Prices
VENT.
Address
W. M. BELL, Smyrna, Del.

I. X. L.
FEED MILL
All Iron but the Hopper.
Cheap, Effective, and Durable.
CAN BE RUN BY ANY POWER.

Capacity from 6 to 30 bushels per hour, according to size. Send for Catalogue and prices.
U. S. WIND ENGINE & PUMP CO.,
Batavia, Kane Co., Ill.

THE PREMIUM
FARM GRIST MILL
Has superior claims over all others. The grinding parts are made of
STEEL
Is simple, durable, and cheap. Grinds all kinds of grain rapidly. Is adapted to all kinds of horse powers. *Send for Descriptive Circular.*
WM. L. BOYER & BRO.,
2101 Germantown Ave.,
Philadelphia, Pa.

CORN HUSKER.
No cold or sore fingers, if used with gloves or mittens. Can be used without gloves or mittens, if desired. Will last a life time. Taken 6 Premiums. One sample 25 cts.; two for 45 cts.; 5 for $1.00. *Postage Stamps* received same as cash. *Agents Wanted.* Catalogue of Novelties free.
CITY NOVELTY CO., 108 S. 8th St., Philadelphia, Pa.
"City Novelty Co. *Morristown, Pa.,* Oct. 10.
Gents:—Please send me 100 Huskers at once. They sell like hot cakes. Was out about 3 hours and took orders for 25 to deliver to-morrow. Please hurry; will send more orders soon. Have tried the husker; they do all you claim. Met one Farmer who had one and wants another, if he has to pay $1.00 for it. J. H. WARNER, Morristown, Pa.

Big Giant Corn Mill,
Every Man His Own Miller.

The only Mill that will grind Corn with Shuck on without extra expense. The only Mill grinding Corn and Cob successfully, that will grind Shelled Corn fine enough for family use.
Grinds twice as fast as any other Mill of same size and price.
MANUFACTURED BY
J. A. FIELD, SON & CO.,
St. Louis, Mo., U. S. A., & Hamilton, Ont., Canada.

CHALLENGE FEED MILLS.

Grinds three times as fast as any other mills. Always successful. Over 500 First Premiums and Medals. Over 15,000 in use. They do not clog or heat; grinds 60 bushels per hour. All successful Iron Feed Mills INFRINGING OUR PATENTS. Beware: Buy none but the best. Remember the Courts have sustained our Patents. Also the best Wind Mills, Corn Shellers, Horse Power Wood Saws, Fanning Mills, and Pumps. Address CHALLENGE MILL CO., Batavia, Ill.

CADY'S
Patent Iron Sleigh Knees

Reduces the cost of Sleds and Bobs ONE-THIRD.
Enables every man to be his own mechanic.
5,000 in use. No Breakage.
BRADLEY & COMPANY,
Syracuse, N. Y.
Send for Illustrated Price List.

"THE JOHN D. BILLINGS
Patent Steel and Iron Horse-Shoe."
Made *complete,* with Level Spring Platform—Continuous Calk. The best for Horse-Railroads, Farm, and Carriage Horses in the world. Cures Tender and Contracted Feet, Corns, Interfering, Quarter-crack Lameness, and all evils resulting from the use of the common shoe. Trial Set, with Nails, $1.00. To measure, place foot on paper, and draw pencil around. Shoes put on cold. No heating of foot. Send for free Illustrated Pamphlet. THE JOHN D. BILLINGS PATENT HORSE-SHOE COMPANY, 161 and 163 Bank Street, New York.

BEST IS CHEAPEST THOUGH IT MAY COST A LITTLE MORE!

LEWIS' CONDENSED

BAKING POWDER

Made from Refined Grape Cream of Tartar. Recommended by the Brooklyn (N. Y.) Board of Health, and by the first chemists in the United States. *We will pay* **$1000.00** *for any ALUM or other adulteration found in this Powder.* A pound can mailed to any address on receipt of **60** cents.

Manufactured by G. T. LEWIS & MENZIES CO., Philadelphia.

American Fruit-Preserving Powder

AND LIQUID is the Cheapest, Most Reliable, and Best-Known Method of preserving all kinds of **Fruit, Tomatoes, etc. Strawberries, Raspberries,** and all high-colored Fruits, retain their rich color as well as flavor. One ounce of it (costing 3 cts.) is equal to 8 lbs. of sugar in preserving property.

Established over ten years, and endorsed by thousands upon thousands of families. One trial will establish the fact that the **American Fruit-Preserving Powder and Liquid** will effectually prevent fermentation, and preserve all kinds of **Fruit, Tomatoes, etc.,** and keep them the year round, or for years, in jars of any kind or size, or in wooden kegs and barrels, *without sealing air-tight.* Simply corked or tied down with a strong paper is all that is needed.

The fruit will keep *without sugar*, or any quantity of sugar may be added as desired.

Warranted to be as healthful as table salt.

The Fruit, etc., may be cooked little or much, as desired. They will keep without any cooking, or they may be cooked down into sauce. The method is simple and easy. None can fail if the Powder and Liquid is added into the Fruit, etc., in quantities as directed.

One package will preserve 256 pounds of Fruit, Tomatoes, etc. Price **One Dollar** per package.

Give it a trial. If you can not get it from your Druggist or Grocer, I will send it prepaid to any express office in the United States, east of the Mississippi River, upon receipt of the price; or west of the Mississippi River and east of Rocky Mountains for $1.25 per package. **Local and General Agents Wanted.** Address,

L. P. WORRALL, No. 24 Liberty Street, New York.

TO KEEP IT SWEET **CIDER** or prevent *Secondary* FERMENTATION,

USE

IMPROVED PRESERVING POWDER

It does not impair the taste or flavor, is thoroughly reliable and *absolutely harmless to the human system.*

SEND 30c. for a sample sufficient for 40 gallons. Per pound $1.50; lower in larger quantities.

W. ZINSSER & CO., 197 William St., New York.

MAGIC LANTERNS

and **Stereopticons** of all kinds and prices.—Views illustrating every subject, for **Public Exhibitions,** etc.—*Profitable business for a man with small capital.* Also, **Lanterns** and **Views** for *Colleges, Schools, Churches, Sunday Schools,* and *Parlor Entertainments.* Send stamp for 74-page illustrated Catalogue.

McALLISTER, M'f'g Optician, 49 Nassau St., N. Y.

MARCY'S NEW AND IMPROVED STEREOPTICONS

With New Improved and Carefully Selected

MAGIC LANTERN SLIDES,

L. J. MARCY, 1340 Chestnut St., Philadelphia.

For convenience and efficiency, for private or for public use, *they stand*

UNRIVALLED.

Circulars free. Catalogues, 10 cents. Scioptricon Manual, 6th Ed., 75 cents. Splendid Outfits at Bottom Prices.

MAGIC LANTERNS AND STEREOPTICONS

FOR PUBLIC, SUNDAY-SCHOOL & HOME EXHIBITIONS.

120 PAGE CATALOGUE FREE

VIEWS ILLUSTRATING ALL SUBJECTS

C. T. MILLIGAN.

728 CHESTNUT ST. PHILADA

H.C.L.D.

Warranted the best Leather Dressing made. For all leather needing any dressing.—Agents: A. Chadwick, Kansas City, Mo. L. A. Martz, Evansville, Ind.

☞ Ask reliable dealers for it, or address my Agents or

A. D. STRONG, Manufacturer, Ashtabula, Ohio.

PATENTS, TRADE-MARKS, CAVEATS, MUNN & CO., 37 Park Row, New York, Proprietors of the SCIENTIFIC AMERICAN. Thirty-four years' experience as Solicitors of Patents. Hand-book on Patents, with full directions and advice, sent free.

100 *Scrap Pictures,* 10c.; 100 *Transfer Pictures,* 10c.; 12 *Floral Embossed Cards,* 10c.; 10 *Perforated Mottoes,* 10c.; 4 *Chromo Mottoes,* 10c.; 4 *Fine* 6x8 *Chromos,* 10c.; 1 *Floral Surprise,* 10c. All for 50c.! Post-paid. Stamps taken. J. W. FRIZZELL, Baltimore, Md.

ARTIFICIAL LIMBS AND APPARATUS specially constructed and adapted for amputated limbs to restore disabled and deformed parts by injuries, Paralyses, Spinal afflictions, Club feet.

DR. E. D. HUDSON, 1,291 Broadway, N. Y.

L. E. RANSOM, 34 MAIDEN LANE, N. Y. CITY, Importer of **Annatto** and **Dairy Coloring.**

RIDGE'S FOOD for INFANTS AND INVALIDS

Dr. Barker of the Brighton Hospital for Children (Eng.), says it resembles mother's milk so closely that infants are reared and *well* reared exclusively upon it.

COPPER PATCH PLATE

For mending Tin, Brass, Copper, Lead, or Iron, without acid or soldering iron. Any lady or child can mend with it. Will send one sample Plate by mail (with directions) that will cut 192 ¼-in. square patches, on receipt of 25c.; 8 for $1; 100 for $10. (Postage stamps rec'd as cash.) AGENTS WANTED. Can carry one day's stock in your pocket. Sales will yield $3 to $15 per day. Our 64-page Illustrated CATALOGUE of Chromos, Jewelry, Novelties, Stationery, &c., FREE. Address CITY NOVELTY CO., 108 South 8th St., Philadelphia, Pa. Mention this paper.

REAL GOOD WHITE SHIRTS

For 50 Cents.

White, French yoke, linen shield-shaped bosoms, all ready to wash and wear, $6.00 per doz., $3 per ½ doz., by express. One or more samples by mail, post-paid, for 60 cts. each. **NEWARK SHIRT CO.,** Send for circular. **Newark, N. J.**

JOSEPH GILLOTT'S STEEL PENS

SOLD BY ALL DEALERS THROUGHOUT THE WORLD.

GOLD MEDAL PARIS EXPOSITION-1878.

THE HOME KNITTER! Simple; light; durable. New in form and method of operation. Knits stockings, in woollen or cotton yarn, without a stitch of sewing; narrows and widens perfectly; no weights; no "setting up" of work. Retail price, $25. Send for descriptive circulars. Reliable agents wanted.

HOME KNITTER CO., CANTON, O.

BEST IN THE WORLD.

COMMON-SENSE CHAIRS

AND ROCKERS,

With or without Reading and Writing Table. A lady purchaser writes: "The only objection to your Common-Sense Rocker is **we all want it.** I love it, I love it, and who shall dare To chide me for loving the Common-Sense Chair."

Strong, Easy, and Roomy; it fits everywhere. Send stamp for List to **F. A. SINCLAIR,** Mottville, Onon. Co., N. Y.

Every chair stamped and warranted perfect.

[TRADE MARK.]

Veterinary Cosmoline

Is a heavy oleaginous hydro carbon of the consistency of an ointment, derived exclusively from petroleum. It is absolutely free from acids, alkalies, or moisture. When applied to wounded and inflamed flesh, it is a perfect protection against atmospheric action, flies, insects, animalcule, preventing the generation of microscopic organisms, and allowing nature absolute freedom to heal itself rapidly by a healthy granulation without scars. Never has there been a veterinary ointment that would heal so rapidly all the wounds, sores, and surface diseases of horses, cows, sheep, poultry, etc. For sale by Druggists. **Price 75c. in 1lb. cans.** Descriptive circulars mailed in answer to postal cards.

E. F. HOUGHTON & CO.,
211 South Front Street, Philadelphia, Pa

LIQUID

COTTAGE COLORS

25 Shades ready for Brush.

The Best MIXED PAINTS in Market.

Also **Barn, Bridge, and Fence Paints.**

Send for circular.

CHICAGO WHITE LEAD & OIL CO.,
Cor. Green and Fulton Sts., Chicago, Ill.

E. W. BLATCHFORD, Pres. C. F. GATES, Treas.

PRODUCE EXPORTS TO ENGLAND.—Lowest steamship freights on Grain, Apples, Butter, Cheese, Bacon, and all kinds of Produce.

Consignments forwarded to responsible Agents for sale in English markets. No charges made for engaging freight. Bankers, "The Bank of New York."

F. H. RELPH, Freight Broker and Shipping Agent,
29 Broadway, New York.

Building Felt.

This water-proof material, resembling fine leather, is for outside work (*no tar substances used*) and inside, instead of plaster. Felt carpetings, etc. Send for circular and samples.

C. J. FAY, Camden, N. J.

BARLOW'S INDIGO BLUE.

Its well-known excellence as a Wash-Blue commends it to every grocer as an article of sure sale. Housekeepers using it once will buy again.

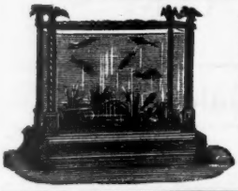
D. S. WILTBERGER, Proprietor,
No. 233 North Second street, Philadelphia, Pa.

ORGAN BEATTY PIANO

NEW ORGANS 13 Stops, 3 set Golden Tongue Reeds, 5 Oct's. 2 Knee Swells, Walnut Case, warr'd 6 years, Stool & Book $90. New Pianos, Stool, Cover & Book, $143 to $255. Before you buy be sure to write me. Illustrated Newspaper sent Free. Address DANL. F. BEATTY, Washington, New Jersey.

THE RACINE IRON WORKS

Manufacture FLORISTS' and ORNAMENTAL IRON GOODS



Ferneries, or Wardian Cases, Aquaria, Fountains, Vases, Brackets, Plant Window Boxes, Flower Stands, Chandeliers, etc.

S. FREEMAN & SON.
Proprietors,
Racine, Wis.

☞ Send for our Illustrated Catalogues.

$14 SHOT GUN! The Best Double-Barreled Shot-Gun in the world for the money. Warranted genuine twist, with *flask, Belt Box Wads, Box Caps and Wad Punch.* Also our celebrated Kentucky Rifle for *$13, warranted or no sale.* Send for Illustrated Catalogue and Price Lists to **James Bown & Son,** Enterprise Gun Works, *136 & 138 Wood St., Pittsburgh, Pa.*

ESTABLISHED, 1843.

WHAT ONE DOLLAR WILL DO!

It will Buy the Best Book Ever Published.

THE AMERICAN POPULAR DICTIONARY—(Illustrated).

Contains every Word in the English Language, with its true meaning and pronunciation, also a complete list of Scripture proper names, besides giving treatises on **nearly 100 subjects entirely foreign to a book of its kind.** Among them are: Nicknames of the Cities in the U. S.; The Discovery and Discoverers of America; Early Settlers, etc., of the U. S.; A Complete Reference of Events of the War of the Revolution; "Declaration of Independence," with the names of the signers; Constitution of the U. S.; History of the American Flag; Population of the U. S. cities and towns over 10,000, and the area of the U. S.; **Public Lands—where** they lie; **Free Homesteads.** Statutes of Limitation; Interest Laws of the U. S.; Insolvent and Assignment Laws of each State. **In one handy volume, and superior to anything issued.** Bound in cloth, with Gilt back. Remember, this is an **ENTIRELY NEW BOOK,** and has *never been offered before.* On receipt of **ONE DOLLAR** we will send the above Dictionary to any address. When ordering, state your Town, County, and State, and write your name out in full. ☞ Any person *not satisfied can have their money refunded* upon return of the book.

☞ *Be sure and mention this paper.* ☜

CARTER & PECK, Pub'rs, 271 Broadway, N. Y.

BRIGHT, ATTRACTIVE, CHEERFUL.

Mrs. Julia McNair Wright's New Book,

THE COMPLETE HOME.

Full of practical information.

The young house-keeper's **guide.**

The experienced house-keeper's **friend.**

House-keeping, Cooking, Dress, Accidents, Sickness, Children, Company, Marriage, Religion, Morals, Money, Family Government, and a multitude of other topics fully treated. **Tells how to make the home BEAUTIFUL and HAPPY.**

"A book of more practical utility will seldom, if ever, be found outside of inspiration."—CHRISTIAN ADVOCATE.

NEEDED in every city home **BY** rich and poor. *in all country homes* *young and old.*

Fine Paper, Clear Type, Beautiful Binding, Splendid Illustrations. *Nearly 600 pages. Low price. Sel's rapidly.*

AGENTS WANTED. *Liberal Commissions. Descriptions and terms free.*

J. C. McCURDY & CO., Philadelphia, Pa.

JUST READY.

8th CLEARANCE CATALOGUE of 5,000 Choice Books at 30 to 50 per cent below Publishers' prices. Great bargains. Send postal for the best catalogue of good books ever issued, *free.*

ESTES & LAURIAT, 301 Washington St., opp. Old South, Boston, Mass.

FOLIO **One Three Cent Stamp** FOLIO

will secure **17 PAGES** of choice new Music, **11 PAGES** of Musical News, and Amusement Gossip, a full-page Lithograph of some musical celebrity. Send to

WHITE, SMITH & CO., Boston, Mass.

Make the Children Happy!

$1.50 **THE NURSERY.** **$1.50**

NOW is the time to subscribe for this **BEST ILLUSTRATED MAGAZINE** for the young. Its success has been continuous and unexampled.

REMEMBER, that by subscribing **now** for the year 1880, **EXTRA NUMBERS** may be obtained.

Send 10 cents at once for a Sample Number and PREMIUM LIST.

EXAMINE IT!

SUBSCRIBE FOR IT!

Address

JOHN L. SHOREY, Publisher,

36 Broomfield Street, Boston, Mass.

Books for Every Family.

MRS. WHITNEY'S STORIES:

Faith Gartney's Girlhood.
Patience Strong's Outings.
Hitherto; A Story of Yesterdays.
The Gayworthys.

New Edition, uniform with "Leslie Goldthwaite's Life" and Mrs. Whitney's other stories, in style and price. $1.50 a volume.

SANITARY DRAINAGE OF HOUSES AND TOWNS. By GEO. E. WARING, JR. New edition, containing two additional chapters. Cr. 8vo. $2.

"It ought to be in every house." [*Hartford Courant.*

"This sensible and thoroughly practical book." [*N. Y. World.*

*** For sale by all Booksellers. Sent, post-paid, on receipt of price by the Publishers,

HOUGHTON, OSGOOD & CO., Boston.

Scribner's Lumber & Log-Book.

OVER HALF A MILLION SOLD. Most complete book of its kind ever published. Gives measurement of all kinds of lumber, logs, and plank, by Doyles' Rule, cubical contents of square and round timber, stave and heading bolt tables, wages, rent, board, capacity of cisterns, cord-wood tables, interest, etc. Standard Book throughout United States and Canada.

Ask your bookseller for it, or one sent by me for 35 cents, post-paid.

G. W. FISHER,

P. O. Box 238, Rochester, N. Y.

$350 A MONTH—AGENTS WANTED—75 BEST selling articles in the world; one sample *free.* Address J. BRONSON, Detroit, Mich.

DRY GOODS

BY MAIL OR EXPRESS.

Sent to any part of the United States by

JORDAN, MARSH & CO.,

OF BOSTON,

The **Largest** and **Oldest** Dry Goods House in **New England.** We are now offering our immense stock at retail, at prices lower than were ever quoted at wholesale before the war. These **unparalleled bargains** have crowded our immense stores with customers from all parts of New England, and we desire every one in the **Middle, Western** and **Southern States** to take advantage of these the Greatest Bargains ever offered in America. Send at once for our New Catalogue, complete in every detail of description and price.

JORDAN, MARSH & CO.,

Boston, Mass., U. S. A.

5 TON FOR $50.

Five Ton Wagon Scales, all Iron and Steel, Brass Beam; freight paid; sold on trial. Address

JONES OF BINGHAMTON, Binghamton, N. Y.

The United States Capitol at Washington, the Metropolitan Elevated Railroad of New York, and many of the largest and finest structures in this country are painted with H. W. Johns's Asbestos Liquid Paints, which are rapidly taking the place of all others for the better classes of dwellings, on account of their superior richness of color and durability, which render them the most beautiful as well as the most economical paints in the world. H. W. Johns M'f'g Co., 87 Maiden Lane, N. Y., are the sole manufacturers.

An Interesting History.

CHARLES DUDLEY WARNER, in his inimitably droll way, wrote of the first volume of ST. NICHOLAS: "Never before has so much literary and artistic talent coöperated in the service of children, and I do not see how it can be made any better; and if the children don't like it, I think it is time to begin to change the kind of children in this country." Prof. Proctor, the astronomer, wrote from London: "What a wonderful magazine it is for young folks, and ours are quite as much delighted with it as American children can be!" In Paris, Monsieur Delagrave is to issue an adaptation of ST. NICHOLAS in French, and Rev. Henry Harris Jessup will translate a volume, made up from ST. NICHOLAS, into Arabic, for the little, far-away Moslems. At home ST. NICHOLAS takes a new departure. The volume which begins with the November issue, ready Oct. 25th, is to be printed on heavier paper, with broader margins and is to have nearly two hundred additional pages. Among the novelties will be a series of Open-Air Papers, by various authors, devoted to descriptions of out-door life and incidents in many lands, but including hints and directions for the common open-air boy-sports and exercises; also a sort of children's walking-match in the fields of American history and biography, and a new department, "The Treasure-Box of English Literature," in which will be given gems from standard English and American authors. These will be selected with a view of encouraging young people in the best reading, and furnishing, when practicable, good pieces for recitation at home and at school.

An Acting-Play for Sunday Schools, by Rev. Edward Eggleston, will be printed in time for the holidays, with full directions for its successful representation in school exhibitions. The November number will open with two beautiful frontispieces and a red-line title-page, and will contain over sixty illustrations. It will begin

A NEW SERIAL STORY FOR BOYS.

"AMONG THE LAKES," by the author of "Dab Kinzer," of whom the *New-York Tribune* recently said. "Mr. Osburn Stoddard is equally at home in the description of an English fox-hunt, a festive entertainment in a noble house, and the pursuit of a savage trail in the wilderness."

A NEW SERIAL BY MISS ALCOTT

begins in the Christmas issue, and a striking story for boys, "The Fairport Nine," by NOAH BROOKS, will commence in an early number. In short, ST. NICHOLAS, which has no rival on either continent, is to be better than ever.

Subscription price, $3.00 a year; 25 cents a number. For sale by all book and news dealers.

SCRIBNER & CO., New-York.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from Page 456.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.

Bound Copies of volume 37, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, 3d cover page.

Clubs can at any time be increased by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

Terms to New South Wales, New Zealand, Australia, Africa, etc.—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist,* (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates, (postage included), see our second cover page, and reckon 22 cents to the shilling sterling.

New Subscribers are being added to our enlarging circle of readers, and we repeat for their benefit what older readers are aware of. We are glad to receive their inquiries, and will do our best to answer them, but we can give no attention to these unless accompanied by full name and address. We have no time to bother with anonymous letters. We rarely publish names: and writers may be sure that we shall not do so if they indicate a wish to that effect. Use whatever signature is fancied, but always give the real one besides.

Georgia—Commissioner of Agriculture.—The monthly report comes to us, and to our great surprise we find a new name, that of John T. Henderson, as Commissioner, in place of the former most excellent officer, Dr. Thos. P. Janes. What were the influences that effected this change we are not informed, but it is no disparagement to the present incumbent to say, that the former Commissioner has set an example in the way of devotion to the interests of the agriculture of Georgia, and intelligent appreciation of the duties of his office that he will be most fortunate to equal. Here now is a chance. A Commissioner of Agriculture has been needed in Washington these many years. Did anybody care a straw whether the Department was made creditable and useful, Doct. Janes would be caught up at once. But there is no hope of that. Doct. J. is utterly disqualified for the office of Commissioner of Agriculture. He unfortunately knows something about Agriculture.

Coal and Commerce.—Those countries which consume the largest amount of coal stand at the head in the commercial interests of the world. Great Britain makes use of 135,000,000 tons annually, the United States 49,000,000, and Germany 48,000,000 tons. These three nations produce and consume three-fourths of all the coal used in the world.

Moore's Prolific Strawberry.—S. C. De Cou, Moorestown, N. J., who has had abundant experience as a cultivator of small fruits, informs us that Moore's Prolific was the best berry that he had the past season and the best he saw in his neighborhood. He thinks it marks a great advance in strawberry culture. A gentleman in New York State, who does not deal in plants, told us last summer that this same variety, of which the supply was limited, spoiled his taste for other strawberries.

Fertilizing Value of Lime.—"A. L. H.," Athens, Ga. Lime is regularly used by farmers in districts where it costs 15 cents a bushel. It is impossible to fix any stated value for lime as a fertilizer, because its action depends upon many contingencies, and it is chiefly indirect in its effect upon the soil. Until it has been tested, no one can say positively whether he will derive benefit from it on a given field, or not.

Management of Fall Calves.—As the winter weather is not favorable to the growth of young animals, extra care must be taken in rearing fall calves. A good start is a great point, and this may be made by leaving the calf with the dam for two or three days, after which a warm, sheltered pen should be provided for it, adjoining a box-stall, in which the dam may be kept so long as may be convenient. Here it may be fed upon skimmed milk, warmed to a temperature of 80 or 90 degrees, after a week's feeding upon the fresh, warm milk just drawn from the cow. For the dairy, no oil-meal is necessary; but for other purposes, an ounce of linseed oil-meal will be useful, added to the milk; first, however, boiling the meal, and reducing it to a thin mucilage. When two months old, the calf will eat a small quantity of hay, but we have found it better to cut the hay, and add the allowance of meal to it. A young calf is not able to digest a large quantity of solid food, and a pint of cut hay, with one ounce of meal, will be ample as a beginning. By gradually increasing the allowance, the calf will gain regularly, and may go out to grass in the spring.

Stable Manure at $3 per Ton.—"H." Many market-gardeners pay more than $3 a ton for manure, and find it profitable. When such a price is paid, the highest culture should be practised, and those crops grown which bring a good price in the market. It is a matter chiefly of management and skill whether or not a gardener can afford to pay three dollars per ton for manure.

Raising Calves.—It is a question if a spring calf or a fall calf is the better to raise. This depends altogether upon the manner in which the calf is cared for. For the dairy, under equal conditions, a fall calf is better than a spring calf, for it can be brought through the winter in good order, and put at once upon pasture in the spring, when a little bran or ground feed will help it to thrive quickly, and arrive at a condition for breeding in time to come in, in the spring, at the age of 28 months; or, if desired for a winter cow, at the age of two years. A spring calf must either be less than two years, or considerably more, when she comes in, under similar circumstances. This is one important consideration. Another scarcely less so, is that a spring calf can derive very little or no advantage from the summer pasture, and thus requires feeding through two winters before it comes into profit. Again, winter dairying is far more profitable than summer, and to have fresh cows in Oct. or Nov. makes them available for this more profitable business; so that, on the whole, fall calves may be considered more profitable in every way than those of the spring.

Machines for Making Large Tiles.—"P. A. D.," Tooele City, Utah. Machines are made which manufacture large tiles, with no more difficulty than small ones, even up to those of 12 inches in diameter. The name of a maker of such a machine is sent you by mail.

Plowing when Land is Dry.—"O. H. S.," Susq. Co., Pa. If the ground turns over well, it makes no difference whether it is dry or not, so that it is not so wet that the pressure of the plow packs and plasters the surface and causes it to dry in lumps. Plowing wet soil is injurious, but dry soil may be safely plowed.

Farming in Iowa.—"P. H. B.," Sharon, Mass. Spring wheat is grown in Iowa. There is less inferior land in Iowa than in any other State, and one can hardly go astray, so far as the quality of land is concerned, in selecting a locality. In other respects there is here, as elsewhere, considerable room for a choice of farming land.

Peeling Bark.—Farmers who own timber land should understand the value of the bark upon it. The barks used in tanning are Hemlock, Oak of different kinds, Birch, and Spruce. The bark of second growth, and small timber, is worth more than that of large trees, and a corresponding value should be put upon it. Tanners are now making contracts for bark, and as they are thoroughly well informed as to the details of their business, and naturally use this knowledge for their own advantage, farmers who are ignorant of it suffer seriously in the conflict of bargaining. The value of bark must gradually increase as the stock of it becomes less, and the demand for it grows larger. In Europe, tanners' bark is worth from $25 to $40 per ton. Here it varies from $6 per ton (or cord, which is equivalent to a ton of 2,240 lbs.,) down to $3, or what the tanner may wish to give. An acre of small Hemlock has been known to return $100 for the bark on it, leaving nearly as much in addition for the wood. This was in the neighborhood of a tannery where dry Hemlock wood was used as fuel, and under favorable circumstances. But it shows the value of a timber lot, which is often considered as an incubus on a farm.

Wheat in Nebraska.—"W. D. H.," Clay Co., Neb., states that the yield of wheat with three of his neighbors was 6½, 9, and 10 bushels to the acre respectively. He wishes to double that yield. "Man proposes, but"—accident disposes in many cases, and weather and season may destroy all hopes. Land that is now plowed for wheat may remain until spring, when it would be well to cross plow it before sowing spring wheat.

Plymouth Rocks.—"J. H.," Hood River, Oregon. Plymouth Rocks should have no feathers on their legs or feet. Some P. R. hens lay white eggs and some lay brown ones. This is an evidence that they are not yet a fully distinct breed, and some further improvement must yet be made in them by care in selecting and breeding.

Preservation of Wood.—Some recent experiments in treating wood with creosote, or "dead oil," as it is technically termed, prove that timber so prepared has very little power to absorb water. Hard Pine creosoted under pressure, after having been dried, was found to have absorbed not a particle of water, after two days soaking. Spruce absorbed only .02 per cent of its weight, while ordinary dry Spruce absorbed .33, or 16 times as much. The California Redwood absorbed nothing after treatment, while previously it absorbed nearly .5 per cent. As decay is proportionate to the power of absorbing moisture, some woods treated with creosote are practically indestructible.

Disease in Poultry.—"J. O." Inflammation and congestion of the lungs sometimes happen among fowls. The symptoms are a weakness of the legs, the fowl sitting on its rump and moping; the feathers are ruffled, and the bird frequently gasps and opens its mouth. Rupture often occurs, and the bird bleeds at the mouth. The remedy is to give castor oil, rub turpentine on the sides, under the wings, and give half a teaspoonful by the mouth

Caponizing.—"A. B.," Sumner Co., Ks. Young cockerels should be made into capons at the age of two to four months; the earlier the better, as there is less danger of bleeding excessively in a younger fowl, and the rib bones are more elastic than in one of six months.

Incubators.—"J. S. C.," Omaha, Neb. In the *American Agriculturist* for July, 1876, is an illustrated article on incubators and hatching chickens artificially. After this lapse of time there is nothing to add to or to take from the statements or opinions there given.

Tarring a Roof.—"H. R.," Kaskaskia, Ill. A gallon of tar may be made to cover 100 square feet of roof if laid on hot, but it would be better to cover the shingles rather more thickly with the tar when cement is used. We would use a gallon to about 60 square feet, so that 9 gallons would be needed for a roof 30×18 feet. A bushel of cement may be spread over a roof of this size, as the thicker the tar is laid on, the more cement should be used to absorb it. The cement should be sown evenly over the tar, as it is laid on the roof in strips, beginning at the ridge and working downwards. Sufficient cement should be used to leave the surface of the tar quite dry—that is, an excess of the cement should be applied.

The Value of the Oyster.—The dull, unmoving oyster is the cause of a very active business. The Baltimore oyster business alone has 80 firms engaged in it, with a gross capital of $7,500,000; 2,427 vessels, with 10,313 men, scoop up the bivalves from their watery beds for the reward of nearly two million dollars in the season; 13,500 men open the shells for a recompense of $2,700,000 in the season, and 1,500 can-makers earn $750,000 in a year in providing means for packing the oysters; 850 clerks, etc., do the office work, receiving $500,000 a year for their services. And the oyster is planted and sown and cultivated, and the crop is reaped, by a system of culture which is not very far removed from agriculture.

Surface Draining.—"W. L.," Benton, Ohio. Where the ground is wet down to the subsoil, deep drains should be made. Where the subsoil is dry the surface water may be taken off by surface drains as an expedient only. The only satisfactory way of ridding the soil of water, either from the surface or below it, is by deep drains.

The Value of an Employer's Time.—It is related of Clare Sewell Read, a Member of the British Parliament, and one of the Commissioners who are now in this country investigating the condition of our agriculture, that when a boy on his father's farm, he was industriously helping the men forking hay, when his father came along and said, "What are you doing? If your time is not worth more than 60 cents a day, you are fit only for a laborer. Be off, and look after the men hoeing turnips, and see that they earn their wages."—It is a rule in railroad and other engineering works, that it pays to have a "boss" over any 10 men, and that the extra work done by reason of the oversight more than pays the wages of the "boss." This rule may well be applied to farm work, and the common plan of an employer working with and leading his men may well be abandoned for a more effective and profitable supervision. But it requires tact and experience to supervise workmen, and these every farmer ought to acquire if he does not possess them.

Dutch Farmers.—Holland should be the agricultural Utopia, if reports we read are to be relied upon, which, considering the simple and plain but thorough character of the Dutch people, seem reasonable enough. The farmers of Holland, although possessing great wealth, do not forsake their plows, and their sons are prepared for farm work by an education at a University. The public affairs are in the control of farmers who compose the majority of the smaller legislative bodies and the Supreme States General. Industry with intelligence, and a true public spirit, make these happy and successful Dutch farmers models for the imitation of others in every country.

Wild Rabbits.—There seems to be, with many persons, a prejudice against the common wild rabbit—or properly hare—as an article of food, and large numbers trapped or killed, on account of the injury they do to young trees, are allowed to go to waste. On the other hand, in the months of November and December, when they are at their best, large numbers of rabbits are bought by city people, who find them both very cheap, and a most acceptable variety to the ordinary butcher's meat. Let those who have never eaten a young and fat rabbit at this season try it, roasted, potted, or made into a pie—and we are quite sure that they will not let such delicious, easily obtainable food be wasted, as it now is.

The Weights of Mangels.—"Subscriber," N. Y. Long Red Mangels have been grown weighing 70 lbs.; Yellow Globes have reached a weight of 45 lbs., or it has been so stated, on as good authority as most facts of this character rest upon, which is the word of the grower. The writer has grown Long Red Mangels weighing 38 lbs., and has seen them grown by a well known farmer on Long Island weighing 43 lbs.

Apples for Cows.—"D. B.," N. Y. A bushel of apples is too much to give a cow in one day, and overfeeding of any kind would lessen the flow of milk. A peck of sweet apples might not be injurious, although many dairymen think they lessen the yield of milk. If a cow is well fed she will milk very regularly (if a good milker) until brought into calf again; after which the milk will usually fall off in quantity. It is not at all uncommon for a good cow to be milking more than a year before she comes in again.

White Specks in Butter.—"M. Q. A.," Grahamville, S. C., states that the white specks often appearing in butter are pieces of curd taken up with the cream when it is skimmed from curdled milk, and they may be prevented by skimming the cream before the milk is thick. We differ from our correspondent in his view, because we have frequently taken cream from thick milk and have had no specks in the butter, and have had specks when sweet cream was churned. The cause is in the cow, and some cow's milk is never free from this fault. In testing the milk of such a cow with litmus paper, we have found it acid when drawn, and this is probably the frequent if not the only cause of it. The fault was removed by giving the cow one ounce of Carbonate of Soda in her feed once a day for two weeks, after which the milk was no longer acid.

The Longest Wool Producer.—"J. K.," Lonaconing, Md. The Lincoln bears the longest wool of any sheep. The wool is sometimes 14 to 16 inches long, but more frequently 8 to 12. The Cotswold bears wool from 7 to 10 inches. The Lincoln also produces a heavier fleece than the Cotswold, being a larger sheep; but the heaviest fleeces have been sheared from Merinos. A ram of this breed in Vermont last year produced a fleece weighing 33 lbs., and one in California a few years ago had a fleece which weighed 52 pounds, which last is probably the heaviest fleece on record.

Three Horses Abreast to a Wagon.—"G. M.," Winnebago, Wis. The only way in which 3 horses can be conveniently hitched to a wagon abreast is to put one between shafts, or a pair of poles, and another on each side of this one. The whiffle trees may be the same as those used for plowing with 3 horses.

Rubber for Mops.—"Mrs. A. B.," Guelph, Ks. Sheet rubber, that can be procured at any store that keeps rubber belting, is the kind to use for mops; or a strip of rubber belting may be used in place of the sheet rubber. three-ply belting will be the best for the purpose.

November Fair List.

STATE FAIRS

Alabama	Montgomery	Nov. 10-15
South Carolina	Columbia	Nov. 11-11

Industrial and District, &c.

Am. Institute	New York	Sept. 17-Nov. 22
Illinois Fat Stock	Chicago	Nov. 10-15
International Dairy Ass'n	New York	Dec. 1-13
Delaware Dairy'n Ass'n	Delhi, N. Y.	Nov. 12-13
Carolina Fair Ass'n	Charlotte, N. C	Nov. 4- 7

Poultry Exhibitions.

Cincinnati	Cincinnati, Ohio	Dec. 24-31
Central Penn	Pottsville, Pa	Jan. 8-15
Council Bluffs	Council Bluffs, Iowa	Jan. 20-23
Champlain Valley	Burlington, Vt	Dec. 16-19
Brocton Fanciers'	Brocton, Mass	Dec. 23-26
Eastern New York	Albany, N. Y.	Jan. 20-27
Empire State	Syracuse, N. Y.	Jan. 29-Feb. 5
Germantown Pet Stock	Germantown, Pa	Dec. 23-26
Huntington Poultry	Huntington, Pa	Jan. 12-15
Indiana State	Indianapolis, Ind	Jan. 8-15
Middlesex Poultry	Lowell, Mass	Dec. 29-Jan. 1
Meriden Club	Meriden, Conn	Jan. 6- 8
Northern Indiana	Fort Wayne, Ind	Jan. 27-30
Oxford Co.	South Paris, Me	Dec. 16-18
Rock River	Sterling, Ill	Dec. 9-12
Rhode Island	Providence	Feb. 4-11
Southern Conn	Bridgeport	Dec. 15 19
Southern Mass	Fall River	Jan. 13-17
Southeastern Iowa	Burlington	Dec. 29-31
Terre Haute	Terre Haute, Ind	Dec. 29-Jan. 3
Wabash Valley	Lafayette, Ind	Dec. 10-17
Western Poultry Club	Bloomington, Ill	Jan. 16-23

Dishorning Calves.—"H. Q. A.," Beaufort Co., S. C. The usual method of preventing the growth of the horns of calves is to sear the first growth with a hot iron as soon as it appears. The operation is not very painful, as the first growth of horn is not sensitive, not yet being sufficiently matured to become provided with nerves.

Scratches in Horses.—This is one of the most common diseases of horses, and one that is caused by ill-ventilated and filthy stables. A horse's feet will get sore if he is forced to stand in a stable that is seldom properly cleaned, and upon a heap of his own excrement. The sore which appears under the fetlock joint can be cured by bathing with a solution of Sugar of Lead and Water; but it is best so to keep the horse, neat and clean, that no occasion will arise for the use of such a remedy.

The European Sugar Crop.—While we are struggling to reach a satisfactory development of the manufacture of beet-sugar, and are writing, talking, and disputing on the possibility of growing beets and producing sugar from them, in Europe the manufacture reached the enormous amount of 1,550,000 tons in 1868, and the crop of the present year is estimated to exceed it by 60,000 tons. In Germany the beet-root tax was paid in 1878 upon 4,622,900 tons of roots, and the average yield of sugar from these was 12¼ per cent. In France also the manufacture is taxed, so that we should possess an advantage in our favor in the freedom from this charge. Why it should be a question with us, whether or not we can grow beets, with our climate so similar to that of Central Europe where beet culture flourishes, seems an absurdity. The only difficulty appears to be that we do not set about it. The past season the writer has grown, in New Jersey, an acre of Vilmorin's Improved Sugar-Beet with success, and the roots are as fair, smooth, and sweet as could be desired, and they are found to be most excellent for the production of milk and butter.

The Present Value of a Duchess.—At the recent sale of the herd of the Earl of Dunmore, Duchess 114th was sold for $14,040, and Duchess 117th for $16,640. Considering the remarkable depression in business in England, and the low condition of agriculture, these prices are as good as might be expected. But then the rearing and keeping of Duchesses is not agriculture.

Home-made Bone-dust.—Bone-dust, as valuable as that sold for $35 to $55 per ton may be made at home, through the winter, with little trouble, if a stock of bones can be procured. Pack the bones in layers in boxes or barrels, with a quantity of unleached wood ashes, and keep the whole moist, but not wet. After a few months, break up the bones into fine powder. This will possess every fertilizing quality of the best bone-dust.

The Trade in Peanuts.—The peanut is an American institution which flourishes in all places, high and low, and among all classes of people. In the highest halls of legislation, and the poorest haunts of the lowest of the populace, the peanut is a cherished delicacy, and the business of growing and distributing it has become so important that it has been found necessary to reduce it to rules and standards. Hereafter, by agreement of the dealers in this edible, the former standard measure, the bushel, is abolished, and in place of it, the bag of 100 pounds is to be the regular package, and the price is fixed at so much per pound. So that the peanut, at once lowly and aristocratic in its uses, takes a foremost place in the reform in weights and measures which promises to abolish the present uncertain and incongruous bushels with the pecks, gallons, and other fractional parts of it, and give us in place of it the pound as a unit, and the 100 will become the usual business quantity by which articles heretofore measured by the bushel will be bought and sold.

German Agriculture.—Official statistics give the following figures representing the condition of German Agriculture at the end of last year: Acres of arable land 55,000,000, meadow 25,000,000, gardens 580,000, vineyards 330,000 acres. Twenty-six per cent of the whole country is in forests, 7 per cent is occupied by roads, lakes, rivers, and waste land, or about ⅓ not tillable.

American Jerseys.—Prof. G. E. Morrow, of the Illinois Industrial University, has just returned from a trip to Europe, and, among other places he visited, were the Channel Islands. He thinks the Jerseys and Guernseys in their native homes are no better than those which have been in our country for some time, and nothing is to be gained, aside from numbers, by further importations; besides, the acclimated animals are better adapted to our climate, ways, etc., than new comers could be.

Advance in Dairy Goods.—The advance in dairy products during the month of September is something phenomenal. A rise of 100 per cent in the price of cheese in 20 days is without precedent. From 5 to 10 cts. a pound is an advance that is cheering to the dairymen who have for a long time battled with misfortune. Butter has advanced 25 per cent, and will probably follow cheese to a still higher advance. Now let dairymen take warning from the past, and avoid saddling the market with poor qualities. Let them encourage consumption at home by making only the best possible cheese, and consulting the tastes and whims even of the home markets. There is a vast field to be occupied, and millions of pounds of cheese will yearly be eaten by Americans if the quality is only made attractive, as it should be.

Weeding Out.—The season is drawing to a close, and any farmer that has had a poor cow in his herd through the summer, should decide to not have her another year, and forthwith begin to fatten her for beef. There may be sheep in the flock that do not pay their way, and should also be "weeded out." The poor stock should never be bred from, as "like begets like," and it is only perpetuating the poor in the place of the good. Cast out all inferior animals; and with this rule rigidly followed there will be great improvement in farm stock.

Wheat in Corn.—The common western practice of seeding corn fields to wheat, which is made so easy, now that one-horse drills are in use, is one that offers stronger evidence of the advantage of clean culture than a world of talking or writing could do. A corn field infested with weeds cannot thus be sown until it is plowed, which would be very late, while clean fields have been sown nearly two months before the corn has been cut.

Heavy Fleeces.—The gradual improvement of the American Merino has resulted in a greater addition to the value of a wool-bearing animal than has been reached in any other country, or perhaps in any other case. The weight of wool in proportion to weight of carcass has been doubled, and fleeces of 34 or 35 lbs. are not infrequent. Three rams in Vermont the past season sheared 31, 35, and 37 lbs. respectively, and although this is so far unprecedented, no one can tell to what greater weights of fleece the skillful breeders of Vermont may arrive.

New Grades of Wheat.—The Grain Committee of the N. Y. Produce Exchange have established new grades for wheat which have already gone into effect. Among others are the following: Extra winter wheat to be bright, sound, dry, plump, and well cleaned. No. 1 to be sound, dry, and reasonably clean. Nos. 2 and 3 to be second, and unfit to grade higher. Amber and red winter wheats are similarly graded. No. 1 North-west spring wheat to be sound, well cleaned, and weighing 58½ lbs. to the bushel. No. 2 to be sound, reasonably clean, and 56½ lbs. to the bushel. No. 3 to weigh not less than 53½ lbs. to the bushel. These grades are grown in the North-west. Nos. 1, 2, and 3 spring wheats, are similarly graded. "Steamer spring wheat" is slightly soft or damp, and of an inferior quality, and grades as above with the word "steamer" prefixed to each number.

Dominique-Leghorns.—The following opinion of the editor of the "Poultry World" may be submitted to those correspondents who have objected to our recent remark that we knew of no *breed* of fowls called Dominique-Leghorns: "FALSE FEATHERS.—J. D. C., Scranton, Penn., inquires: 'Do White Leghorn eggs ever produce Speckled or Dominique chicks?'—We never knew a strain of White Leghorns that would not, rarely—say in one case in five hundred, or a thousand, if the former estimate offends any 'Leghorn man'—throw a chicken with a *few* black feathers. Hence a thoroughly Speckled or Dominique colored fowl may not be an impossibility. But such a manifestation would be exceedingly improbable. We never have seen one among our own White Leghorns, though we have raised great numbers in all, sometimes several hundred in a season. Unless very positive that there had been no *crossing* with another breed, we should be more inclined to believe that a Dominique-Leghorn was the result of a mixture of other blood, than that it was a freak or reversion. At the same time we fully admit that it may be a freak, for very marked 'sports,' 'variations,' or whatever they may be called, do occasionally occur with every animal, wild and domestic."—If we are wrong we err in good company. In the desire to multiply varieties for profit or notoriety, many crosses are made which can not be dignified by the name of *breed*.

Muck.—A muck bed has been called a gold mine by some persons who have had a good one on their farms and have used it properly. If not a gold mine, it is at least a source of much valuable fertilizing material, and of one of the very best absorbents for the liquid manure, which in most stables and barn-yards goes to waste. Muck should be drawn out and left in a pile near the bed to dry, after which it can be taken to the stable. The manure decomposes the muck, and the muck holds the soluble matter of the manure—a mutual benefit.

Why are Potatoes Hilled Up.—"Oregon." Potatoes are hilled up to prevent them from growing out of the ground, as some varieties have a strong habit of doing. Earthing up also tends to mellow the soil and to encourage the stem to throw out more roots.

Potatoes for Fattening Hogs.—When fed alone potatoes do not give good returns in pork, because they are not rich enough in albuminoids—the elements which are necessary for the formation of flesh—lean meat, or muscle. The conclusion to be drawn from the various experiments in feeding swine, is, that the ratio between the carbo-hydrates and albuminoids, the fat-forming elements, and the muscle-producing food should be as 8 to 1. Potatoes stand about 10½ to 1, the fat-forming material—the starch—being too abundant for the nitrogenous portion. Peas have the albuminoids in excess, the ratio being about 2½ to 1, and are therefore well fitted to mix with the potatoes, to bring the food to the right standard. If one bushel of peas is added to a bushel of potatoes, it makes the ratio 10½ plus 2½, or 13 to 2, or 6½ to 1. The carbo-hydrates are still lacking, and by adding another bushel of corn, the ratio stands 7.8 to 1, which is about right. The peas ought to be boiled with the potatoes, when a mixture is obtained easily digested by the swine, and equal to the best hard corn in fattening properties. The price of potatoes and peas, and corn, will determine which is the cheaper of these two foods.

Give the Pigs a Rubbing Post.—It is as natural for a pig to rub as it is to eat; hence we may suppose that it is necessary. A pig that is being fed all it can eat, and is confined in a close pen, needs to have its skin rubbed, and if a good place is fixed for the rubbing, so much the more comfort for the pig, and better health, and the pork *may* be improved thereby.

Exercise for Fowls.—A novel way of furnishing hens, that are confined in a small space, with an abundance of exercise, is recommended by an exchange. A piece of meat is suspended by a string just so high that the fowls are obliged to make a good jump to reach it. We suppose other kinds of food could be thus placed, and no hen would be without the incentive to take the necessary exercise while eating her daily food.

English Cattle Shows.—The "N. Y. Evening Post" has a correspondent, an operative in a factory in Manchester, Eng., who, over the signature of "A British Workman," manages to get in more sense to the square inch than is usually found in such writings. He thus gives his views of the recent County Cattle Show. He says: "Immense sums of money were given in prizes, and immense crowds of people congregated daily to see * * *. But a few of us have been rather struck at the apathy exhibited in connection with the apparant favoritism exercised in the judging of cattle, etc. This immense favoritism, together with the competions of people who have nothing else to do with their money and time but train and feed animals which they own to the very topmost pitch of perfection, must make an ordinary competitor think it only a waste of time, money, and patience to enter the lists at all. As an instance of this, it is worthy of notice that the President of the Society, the Earl of Ellesmere (quite a youth in appearance), takes first, second, and third prizes in every class of cattle he exhibits. The Duke of Westminster, the wealthiest aristocrat in the world, also takes first and minor prizes in almost everything he exhibits. Of course, all this makes Manchester working-men wonder why working farmers have the courage to face the family influence, the full purse, and the flunkeyish favoritism with which such specimens of our nobility are blessed."

What Farm Products We Sell Abroad.—The recently issued report from the United States Bureau of Statistics, gives the following interesting summary of our exports for the year ending June 30, 1879:

Flour, Wheat and other grains	$308,615,051	Cheese	$12,579,968
		Horned Cattle	8,379,200
Cotton	161,196,178	Preserved Meats	7,311,408
Bacon and Hams	51,074,433	Butter	5,421,205
Tobacco	25,157,364	Fresh Beef	4,838,080
Lard	22,856,673		
Total			$507,434,560

Considering the $74,031,106 of "hog products" as resulting from grain feeding, and the Beef and Dairy products as belonging to pasturage, we have the exports of

Grain and Grain Products	$282,546,157
Cotton	161,196,178
Pasture Products	38,524,861
Tobacco	25,157,365

That "Perfect Milk-Pail," described last month, page 427, grows in our estimation the more we consider its utility. The process of milking, as ordinarily practised, is anything but cleanly. The dandruff, the fine dust, the dried particles of manure or mud, constantly falling into the broad, open milk pail, is not pleasant to think of. The absorption of odors from the stall or barn-yard, where cows are usually milked, and from other sources, is enough to greatly deteriorate nine-tenths of all the butter produced. These troubles are largely mitigated in the new milk-pail, while its mechanical convenience is of no little importance. All dairymen would like it.

The Winchester Repeating Arms Co.—The large windows of this Company's store, No. 245 Broadway, have almost always a crowd in front of them, for besides making a handsome show of their wares, they have a sectional specimen of one of their rifles. This is a rifle cut in halves for its entire length and exposing the ingenious but simple machinery to which the effectiveness of their weapons is due, and gratifies that general Yankee curiosity to know how things are done. That the arms sent out by this Company maintain their high reputation for accuracy, effectiveness, and good workmanship, is shown by the great number of cases leaving their store directed to all parts of the country.

New Coleuses.—Within the last two years a number of new and very striking varieties of Coleuses have been produced, and quite unlike any that have preceded them. Henry Dreer, of Philadelphia, and H. W. Hales, Ridgewood, N. J., have both sent us specimens, strikingly beautiful and novel. When these come into the market, they can not fail to be popular. Should they not hold their markings in the garden, their brilliant colors will make them valuable for greenhouse decoration.

Painting Buildings.—The cool weather of late autumn is very favorable for the proper drying of paint; it forming a harder and more durable coat. Flies and other small insects, a serious annoyance in warm weather, by adhering to and disfiguring the paint, are avoided.

Bermuda Grass—No Seed.—"X. C. N.," Archer, Fla. Many other applications besides yours, have been made for the seed of Bermuda Grass, and we have stated several times that none could be had. The plant in this country, at least, bears no seed. We have examined hundreds of specimens during the last 20 years, and have not been able to find even an immature seed. It is sometimes the case that plants so abundantly provided with other means of multiplication do not bear seeds. Horse-radish—every bit of the root of which will grow—is another example. It flowers, but the seed is unknown. Our statement that Bermuda Grass did not bear seed has been contradicted, but when we have asked for specimens, we have invariably received Crab-grass (*Panicum sanguinale*), which, though like the other in general appearance, belongs to a very different tribe of grasses, and, moreover, is an annual. Bermuda Grass is so wide-spread, being found in every warm country—including Australia—that its original home is not known. It no doubt bears seed somewhere, else its wide distribution could hardly have been effected—but where?

The Investigation of Hog Cholera.—The Commission appointed in accordance with the resolution of Congress to investigate the diseases of domestic cattle, have concluded their labors, and have reported to the Commissioner of Agriculture. Each examiner has made a separate report, but the tendency of all is to show that the disease in swine, known as Hog Cholera, is one of the blood, caused by the presence in it, of extremely small vegetable growths, known as bacteria, by which the vital fluid is disorganized, and made incapable of supporting life. The blood thus poisoned, infects the tissues, which become inflamed, gangrened and decomposed, when death ensues. Rabbits and sheep may be subjected to the disease by inoculation, and infection is carried by the same means, to other swine, with great apidity. Unfortunately no decision has been arrived at, nor any suggestions made as to means of prevention, and cure is thought to be impossible. The Report is a lengthy one, filling a volume of upwards of 300 pages.

The Dairyman's Illustrated Almanac proved a success last year, and we are informed by Messrs. H. K. & F. B. Thurber & Co. that it will be continued this year. It is likely to become a permanent institution. Its appearance will be announced at a later date.

Catalogues Received.

NURSERYMEN.

J. W. ADAMS, Springfield, Mass.—A wholesale list of Brightwood Nurseries for the coming fall and spring.

CHAS. BLACK & BRO., Hightstown, N. J.—A general stock of fruit and ornamental trees and plants; offers spring-budded peach trees.

GEO. W. CAMPBELL, Delaware, Ohio.—Besides a very full list of grape-vines, offers a general stock, including greenhouse plants.

JOHN S. COLLINS, Moorestown, N. J., sends an illustrated catalogue of small fruits of all kinds; he offers fruit and ornamental trees and Jersey Red Hogs besides.

D. E. HOXIE, Northampton, Mass., at the Hillside Nursery, has a general stock of small fruits.

R. S. JOHNSON, Stockley, Del., makes a specialty of peaches, including June-budded trees, and offers other fruits, large and small.

WM. S. LITTLE, Rochester, N. Y.—A general stock of fruit trees of all kinds, and Evergreen and other ornamental trees and shrubs at trade rates.

J. B. MOORE, Concord, Mass., offers Moore's Early Grape, with a list showing the various prizes awarded.

WILLIAM PARRY, Cinnaminson, N. J., sends his general catalogue of fruits and special lists of New Strawberries, New Raspberries, and the Japanese Persimmon.

FLORISTS AND SEEDSMEN.

WM. C. L. DREW, El Dorado, Cal., offers California bulbs and seeds.

PETER HENDERSON & Co., No. 35 Cortlandt St., N. Y., issue their fall catalogue of bulbs of the season, plants for winter blooming, and seed for fall sowing, besides a long list of florists' requisites.

Z. K. JEWETT, Sparta, Wis., supplies leaf-mould, moss, Bouquet Green, etc.

MISCELLANEOUS.

C. HODGKINS, Marlboro, N. H.—Improved Water Rams, Wood-working Machinery, etc.

JOHN B. MOORE, Concord, Mass.—Medium Yorkshire Swine, with pedigrees.

FOREIGN CATALOGUES.

WILLIAM BRYCE & Co., Glasgow (Scotland), and London (England).—Wholesale list of vegetable and agricultural seeds.

B. GOTT, Arkona, Ont., Canada.—General stock of fruit and ornamental trees, etc.

GUSIN & GUICHARD, Lyons, France.—Bulbs and roots of flowers in great variety.

MCBROOM & WOODWARD, London, Ont., issue a fall catalogue of bulbs, with full directions for their culture.

Beatty's Offer for Thirty Days.

Only $98.00 with STOOL and Instruction Book.

This Beautiful Piano Upright Cabinet or Parlor Organ, (like cut) **New Style A, or No. 2400.** Dimensions—Height 75 inches, Depth 24 inches, Length 52 inches. **Three (3) Sets of Golden Tongue Reeds, Thirteen (13) Stops.** (1.) Violina, (2.) Echo, (3.) Viola, (4.) Diapason, (5.) Melodia Forte, (6.) **VOX CELESTE,** (7.) **GRAND ORGAN,** (8.) Celestina, (9.) Flute Forte, (10) Melodia, (11.) Flute, (12.) Dulcet, (13.) **VOX HUMANIA or THEKELO. Five Octaves. Upright Bellows with immense power. Lamp Stands** at each end. Beatty's Improved Knee Swell, and Beatty's New Excelsior grand Organ Knee Swell. Magnificent highly finished Black Walnut Case and Elegant French Veneered Panels latest design, extension top with beautiful music desk. All late Improvements. Weight when boxed about 375 lbs. This **Organ contains Beatty's New Vox Celeste Stop which is by far the sweetest and most perfect that has ever been attained.** Charming! is the universal exclamation of critics and lovers of sweet music who have heard this combination. The sudden burst of harmony thrown out by the Beatty Grand Organ Excelsior Knee Swell, from the scale being performed by a professional is inimitable; all things considered, this instrument is the finest Cabinet Organ in America. I challange its equal. Beware of imitation. Buy only the genuine Beatty.

Regular Retail Price asked for such an Instrument by the Monopolists Agents about $375.00.

I will sell this Beautiful Organ during the next 30 days in order to have it introduced, with a

Plain $3 Adjustible Stool and INSTRUCTION BOOK thrown in, (which will be shipped with the Instrument) for only.

$98.00!

☞ **Can be shipped on an Hour's Notice. Please send your order by letter or telegraph. No money required until you are entirely satisfied. Pay for the Instrument only after you have fully tested it at your own home, if it is not as represented, return it at my expense, I paying freight both ways. This certainly is a fair offer. Remember this offer is not good after the 30 days are up and that I positively will not deviate from this price.**

Fully warranted for 6 Years!

I want this instrument more generally introduced, hence this unparcelled offer. It is about the actual cost of manufacturing. **ORDER AT ONCE,** as every Organ when introduced in a new locality sells others. My instruments are first-class and just as represented. **It is a Standing Advertisement.** Hence I can give you this **splendid bargain,** by selling you the first one at about cost. You will do well to accept this offer. At this writing our order No. stands **72,819,** (Seventy-two thousand, eight hundred and nineteen) of **Beatty's Celebrated Pianos and Organs** in actual use throughout the civilized world, and I challenge any one to show one that does not give perfect satisfaction. Sales now very large, constantly increasing at a rapid rate. **The most successful house in America.** More **unsolicited testimonials** than any manufacturer. Send for list of names of persons who are using my instruments everywhere, some may be in your neighborhood, whom you may know. I have extended my sales now over the entire world. **The Sun shines nowhere but it lights my instruments.** Since my return from an extended tour through the Continent of **Europe,** I am more determined than ever, that no city, town or village throughout the entire civilized world shall be unrepresented by my celebrated instruments. Beware of imitations! My great success has brought into existence hundreds of irresponsible imitators. Beware! Buy the best, but avoid the monopolists and irresponsible houses. ☞ This is the only Establishment in the world that uses the **Celebrated Golden Tongue Reeds!** The greatest invention of the 19th century. Having been **Elected Mayor** of my city by an overwhelming majority is sufficient proof of my popularity at home. **This Advertisement will appear but once,** and nothing can be saved on this instrument by correspondence. **Order now!** If you do not want one yourself, order one and make your friend a handsome present. ☞ This is the greatest offer yet made. Illustrated Newspaper with much information about cost of Pianos and Organs, sent **free. Show this splendid Offer to your Neighbors.** ☞

ADDRESS ALL ORDERS TO **DANIEL F. BEATTY, Washington, New Jersey.**

BOYS' CLOTHING

Made to Order, suitable for any from four to nineteen years of age.

Directions for measuring, samples of material, styles of garments, with prices, sent free upon application, by mail.

PIECES FOR MENDING

sent with each suit. A great saving of trouble and an economical way to clothe your boys. Address

POOLE & DEVOE,

54 and 56 Duane St., N. Y.

An "Agricultural Number" of SCRIBNER'S MONTHLY.

EDITION 100,000!

In addition to the usual variety in the contents of SCRIBNER, the November issue (the first of a new volume which will be even more splendid than any which have preceded it) will contain a half dozen papers of the highest interest to farmers, business men and others interested in rural life: "The Agricultural Distress in Great Britain," by P. T. Quinn—personal observation of the effects of American competition; "Farming in Kansas," by Henry King—a capital paper on the picturesqueness and industrial prosperity of Kansas, with results of negro exodus, etc.; "Success with Small Fruits," by E. P. Roe, who is probably better fitted to write on this subject than any other man in America; "Rare Lawn-Trees," by Samuel Parsons, Jr., the well-known nurseryman; "The Mississippi Jetties," and their effect on the prices of agricultural products, with a portrait of Eads; "How Animals Get Home," a very interesting paper, full of anecdote, by Ernest Ingersoll, one of our rising young naturalists. Then we are introduced to the woods and streams of Northern Michigan, in an interesting out-of-door paper on "The Michigan Grayling."

But Art has not been forgotten. There are two fine portraits of Bayard Taylor—one engraved by Cole, from the best photograph, and the other a reproduction by Juengling, of O'Donovan's bronze bass-relief. These portraits accompany a discriminating critique of Taylor, by Stedman. Clarence Cook has a paper on "Morris Moore's Old Masters," with a reproduction, by Cole, of Raphael's "Apollo and Marsyas." The original of this celebrated picture has been exceedingly admired in Rome, and many are now urging its purchase for America. There are Poems, Stories and Sketches; "The French Quarter of New York"; "Extracts from the Journal of Henry J. Raymond," with interesting reminiscences of Daniel Webster; a beautiful story, by Boyesen; an ingenious story, "A Sigh"; the fourth part of "Confidence," by Henry James, Jr., begun in August; and the first part of

A NEW AMERICAN NOVEL

Or Creole life, "THE GRANDISSIMES," by George W. Cable, of New Orleans, the author of "Old Creole Days," which has created such an excellent impression in the literary world. The critic to whom the story was referred in MS. says: "It will rank permanently with the very best fiction that America has produced, being a fresh, vivid, artistic and forcible picture of a life which is part of our own, and yet foreign to it."

"The REIGN OF PETER THE GREAT,"

By EUGENE SCHUYLER, is noted editorially. This splendid series of ILLUSTRATED HISTORICAL PAPERS, the greatest work of the sort yet undertaken by any popular magazine, will begin in the January issue, and will continue for two years. It will be of absorbing popular interest. Subscriptions will be received for two years, $8.00.

The permanent enlargement of SCRIBNER to 160 pages (the present issue has 164) is to be noted. All that enterprise and skill can do will be done to maintain the position of SCRIBNER as the leading popular periodical of America. With the revival of the agricultural and business interests of the country, increased attention will be paid to papers on great public enterprises and interests (already a notable feature of the magazine). It will not be forgotten, however, that SCRIBNER will owe its prosperity in the future, as it has in the past, to its two most prominent characteristics: its *charm* and its *suggestiveness*.

Sold, and subscriptions received, by book-sellers and news-dealers, at $4.00 a year, 35 cents a number.

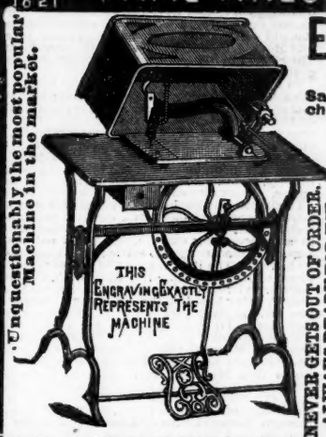
SCRIBNER & CO., New-York.

FOR SALE LOW.—A highly improved, very profitable and salubrious fruit farm of fifty acres, on tide water, adjoining the U. S. Naval Academy.
Address P. O. BOX, 133, Annapolis, Md.

ESTABLISHED 1821 — TIME TRIES ALL THINGS — CIRCULATION 40,000 1879

FOR MORE THAN HALF A CENTURY THE LEADING FAMILY PAPER OF AMERICA.

"Unquestionably the most popular Machine in the market."



NEVER GETS OUT OF ORDER. ALWAYS READY FOR USE.

Everybody Read This!

NO MIDDLEMEN.

Save $50.00 in the purchase of a Sewing Machine, or work a day among your friends, and PROCURE ONE FOR NOTHING.

☞ *The Saturday Evening Post*, published at Philadelphia, Pa., is the **oldest Literary and Family Paper in America**—now in its **59th year.** It is a large 16 page weekly paper, elegantly printed, folded, cut and bound. Subscription price only $2 a year, and its publishers have determined to **spare no money** in introducing it into households in *every city and hamlet* in the United States. In order to do this we have made arrangements with one of the largest manufacturers of Sewing Machines in the world to furnish us with a large number of the **CELEBRATED LATEST STYLE GROVER & BAKER SEWING MACHINES** *at a fraction above their actual cost of productions.* We have been able to make this

UNPRECEDENTED ARRANGEMENT

by contracting for large numbers of Machines and paying the **cash in advance** for them, and we now offer to furnish a Machine to every person subscribing for the Post *at the actual cost to us*, thus saving to our subscribers the enormous profits heretofore and now made on Sewing Machines when sold through the regular channels of trade, in which event it is necessary for a Machine to pass through several hands, and the purchaser must pay to **each a handsome profit.** In the construction of the *Grover & Baker Machines*, old ideas have been discarded, and in accordance with the progressive spirit of the age, new combinations and devices have been used to make it a *Perfect Sewing Machine*, and we unhesitatingly recommend it to all. It is the same Machine that has been sold by *Agents at $65.* Each Machine is furnished complete, all having **highly polished black walnut top and box cover that** locks down, and the iron work is finished in *black and gold*, with nickle slide.

OUR OFFER.

On receipt of $16.00 we will mail, postage prepaid, a copy of the *Saturday Evening Post* for one year to any address in the United States, and also forward **on day money is received**, one of the above described Sewing Machines, securely boxed, to any town in the United States in which there is an express office, and **prepay all express charges to destination**, thus delivering to you a choice family paper for one year, and a Sewing Machine sold by former combinations at $65, and all *to you for only $16.* We also send free with each Machine the usual attachments, such as Guide, Guide Screw, Quilter, Hemmer, Oil Can, Screw Driver, 1 dozen assorted Machine Needles, a book of instructions, so that *any one* can run the Machine **without a teacher**, &c. Or to any person sending us the names of twenty new subscribers for the Post for one year, and enclosing $40.00, we will send a Machine as above with all attachments, **FREE!** You can send the name of five or more at a time, but state you are working for the Sewing Machine premium. Sample copies of the Post sent free on application. **EVERY MACHINE GUARANTEED IN PERFECT RUNNING ORDER, OR MONEY WILL BE REFUNDED.** Remember, everything in the above offer will be delivered to you **ABSOLUTELY FREE** after we have received $16.00, as all **EXPRESS CHARGES ARE PREPAID BY US**; we can only do this, by having made **SPECIAL RATES** with transportation companies.

As to our reliability, we refer to the publishers of **ANY PHILADELPHIA JOURNAL**, but we think it sufficient to say that the Post has been published for the past **FIFTY-NINE YEARS**, it has **NEVER MISSED AN ISSUE**, is favorably known throughout the *United States*, and we expect it to gladden the firesides of its thousands of readers for many years to come. When you order mention this PAPER, write your name plainly, giving your post office and nearest express office. Send money by registered letter, post office money order, or draft on New York or Philadelphia, made payable to our order. Address all letters to the

PUBLISHERS SATURDAY EVENING POST,
No. 726 Sansom Street, Philadelphia, Pa.

The Popular Science Monthly.

Conducted by E. L. and W. J. YOUMANS.

Containing instructive and interesting articles and abstracts of articles, original, selected, and illustrated, from the pens of the leading scientific men of different countries;

Accounts of important scientific discoveries;

The application of science to the practical arts;

The latest views put forth concerning natural phenomena, by *savants* of the highest authority.

Prominent attention is given to those various sciences which help to a better understanding of the nature of man, to the bearings of science upon the questions of society and government, to scientific education, and to the conflicts which spring from the progressive nature of scientific knowledge.

THE POPULAR SCIENCE MONTHLY *was enlarged, beginning with the issue for January*, 1879. It is handsomely printed on clear type, and, when necessary to further convey the ideas of the writer, fully illustrated.

TERMS: $5.00 per annum; or, 50 cents per number.

The volumes begin May and November of each year. Subscriptions may begin at any time.

THE POPULAR SCIENCE MONTHLY and APPLETONS' JOURNAL, together, for $7.00 per annum, postage prepaid. (Full price, $8.00.)

D. APPLETON & Co., Publishers, 549 & 551 Broadway, New York.

A VALUABLE WORK.

A TEXT-BOOK

OF

Veterinary Obstetrics.

INCLUDING THE DISEASES AND ACCIDENTS INCIDENTAL TO PREGNANCY, PARTURITION, AND EARLY AGE IN DOMESTICATED ANIMALS.

With Two Hundred and Twelve Illustrations.

By GEORGE FLEMING,

VETERINARY SURGEON, 2D LIFE GUARDS; FELLOW, MEMBER OF COUNCIL AND OF THE EXAMINING BOARD, OF THE ROYAL COLLEGE OF VETERINARY SURGEONS; FELLOW OF THE ROYAL GEOGRAPHICAL SOCIETY, ANTHROPOLOGICAL INSTITUTE, AND OF THE ANTWERP, NEW YORK, MONTREAL, CENTRAL, AND LIVERPOOL VETERINARY MEDICAL SOCIETIES; CORRESPONDING MEMBER OF THE PARIS CENTRAL VETERINARY SOCIETY, ETC.

Author of "Travels on Horseback in Mantchu Tartary," "Horse-shoes and Horse Shoeing," "Animal Plagues," "Practical Horse-shoeing," "Rabies and Hydrophobia," "The Contagious Diseases of Animals," "Manual of Veterinary Sanitary Science," Translator and Editor of "Chauveau's Comparative Anatomy of the Domesticated Animals," Editor of the "Veterinary Journal."

CLOTH, 8vo. PRICE, POST-PAID, $6.00.

ORANGE JUDD COMPANY,
245 BROADWAY, NEW YORK.

New Countries—Cheap Homes.

The effects of advertising may be seen forcibly illustrated in the resulting rush of people to lands distant from markets and organized society, and subject to unknown circumstances of meteorology. As people go by fits and starts to silk culture, to gold fever, and many other delusions, before settling down to plain facts, so we must expect swarms of people to seek first one place and then another. When severe and unaccustomed weather comes upon poor humanity in remote and almost desert lands, and other troubles of pioneer life combine to making the heart sick, the information and conviction will be irresistibly forced upon the people that a plenty of rich land is yet obtainable, at cheap rates, and on easy terms, in old communities, with all advantages of social organization, and that though less acreage may be within reach, yet by favorable circumstances the net profits will be greater.

Lands kept constantly and freshly before the people by advertising will often attract attention from better places.

The colonists of early days made their way westwardly by wagons, but principally by the Ohio River, and the old civilization developed contiguous to the water courses. Thus there are many old communities having improvements, churches, schools, societies, regular mails, newspapers, and many other blessings of good society in overlooked localities, in which railroad enterprise must soon brighten up affairs by prompt arrivals and speedy action. Of these places, little is ever heard, but being sparsely settled and affording many fine opportunities, the development is certain, however slow, from lack of advertisement. There is much of this condition of affairs along the rivers Mississippi, Ohio, Illinois, and those of Arkansas and Missouri. The surprisingly low rates of immigration by boats will have some effect on settling these districts.

The Eastern part of Missouri is a notable example of overlooked capacity for wealth. Settled many years ago, its people, by having a fine climate and generous soils, with excellent means of reaching good markets, realize at all times the best prices for products, and to this day almost every County is free from bonded debt. Many mines of iron, lead, stone, sand, clay, and the wealth of timber, produced such demands for supplies that the home markets were the best, though prices could be obtained for their products in other markets superior to those of many places. Since the improvement of the Mississippi River, and such immense quantities of timber have been taken down the rivers of Arkansas and Southern Missouri to supply European markets, the old settlements there have received increased wealth and double benefit by opening up new farming districts. The rivers are likely to assume greater importance in immigration and traffic.

So many people are anxious to have homes of their own, even under the difficulties of unknown climates, soils, distances, and other obstacles, that it is plain to all that we are on the verge of a great rise in the value of real estate. Foreign immigration will soon be overwhelming, and the owner of the soil will be the Lord of creation. Of course, the central lands being near the masses of people engaged in mines and manufactures, they will increase in value more rapidly, and thence onward for all time accumulate greater riches. Every citizen should seek a home for his family.

The British and Canadian Governments may advertise, and Lord Beaconsfield may speak words of policy however baseless, in fact, and they may donate patches of inferior lands in an inhospitable climate, and a few pet cows, sheep, and pigs, to induce people to settle in the Dominion, but it will be in vain. The British policy of colonization may take the phase of donation and the Russian that of despotism, but both are virtual banishment. The United States policy is liberal, being based on the American principle of getting what you get. It gives part of the land to secure transportation facilities, and thus makes better opportunities for the people.

So some choice lands in the middle country, situated in Southern Missouri and Arkansas were reserved more than twenty years ago, and remained unsaleable until the St. Louis Iron Mountain and Southern Railway earned the lands by completing its road so it could sell the lands. This land grant extends from the Mississippi River, just at the confluence of the Ohio River, through several Counties of Eastern Missouri into Arkansas, and makes a broad belt through that State, embracing hills, valleys, and bottom lands.

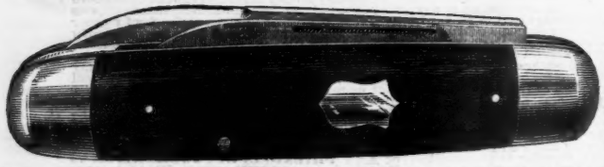
Lack of advertising is plainly shown here as well as in the river districts. In such cases the virtues of the country are made known by the correspondence between friends. Neither the British Possessions nor any other cold climate can hold any man who can get away after learning the facts about Southern latitudes, where pet cows, sheep, and pigs may be selected for almost nothing from the thousands which get their living upon wild grasses, roots, nuts, and acorns. In Arkansas and South Missouri men are not like slaves all summer, to make enough on which to live in winter, and feed their live stock; they can work almost every day of the year, and to make a surplus is easy. Where grasses are good all winter, and game is plenty, meat can be used at every meal. That is a country where soils will not be useless when the wheat properties become worn out. Every crop of the temperate zone flourishes, the mild climate and rich soils make forty acres give more money than one hundred acres in the far north and west. It is where delicious fruits are grown in great variety, and better quality, than in California, and it surely must be the fruit garden of the Mississippi Valley, when it is become plain to the people that fruits are the best regulators of health, and antidotes to the malaria which is so prevalent in North America. So early are the crops that fancy prices are obtained in Northern markets, six or eight weeks earlier than those of their neighborhood, and while Canada and other Northern and Western regions are in snow. It is a country where solid oaks are found eighteen feet in circumference, and grapevines three feet in circumference.

Wheat is unsurpassed in quality and quantity, and other grains, grasses, and vegetables are equal to the best. Mines, manufactories, water power, and transportation, give their influence and benefit to the farmer. Such are the facts of Southern latitudes, and especially of Arkansas, known as the peaceable Southern State, where people are devoted to business instead of politics; and the same is true of the eastern part of Southern Missouri, which have navigable rivers, and the rail transportation facilities of the St. Louis Iron Mountain and Southern Railway. In these States, more than a million of acres of United States lands have remained unadvertised, and thus unsold.

Besides the Citizens' Immigration Societies of the different Counties, information may be obtained from the Land Grant Office, by addressing W. A. KENDALL, number one Fifth Street, St. Louis, Missouri.

Immigration Currents to New Lands.

Great Profits on Early Southern Crops in Northern Markets.



Cut shows exact size of our new knife, No. 21, strongly made, yet no corners to wear pockets. Price, 75 cts. Same size, 3-blade, price $1.

MAHER & GROSH, Cutlers, Toledo, Ohio, have sent over 20,000 knives to readers of the *Agriculturist*, and are anxious to introduce their goods to *all* the large family. Every blade is *hand* forged from *razor steel*, and warranted. If soft or flawy, return to us, and we will replace it *free*. We have a 1-blade knife, 25 cts.; heavy 1-blade, 35 cts.; extra heavy, 50 cts.; boy's 2-blade, 25 cts.; medium 2-blade, 50 cts.; heavy 2-blade, 60 cts.; extra heavy 2-blade, made for hard service, 75 cts.; our best finished, heavy 2-blade, tested, $1. Ladies' knives, 15 to 75 cts. **PRUNERS,** medium, 75 cts., large, oil temper, and tested, $1. Illustrated list free. Liberal discount to dealers. Address as above.

University of the State of New York.

American Veterinary College.

141 West 54th St. NEW YORK CITY.

The regular course of lectures commences in October, each year. Circular and information can be had on application to

A. LIAUTARD, M.D.V.S.,
Dean of the Faculty.

PREMIUM STOCK.

A few extra young Jersey Bulls from my Centennial prize Herd, and winner of the Gold Medal 3 times at the N. Y. State **Fair.** Also one Imported Guernsey Bull. A few Ayrshire Bulls and Heifers from my **Centennial Herd,** Southdown Ram Lambs, got by prize Ram of the **Royal Show** in England. Ten Scotch Collie Pups, out of Imported Dams and Sires, mated for breeding purposes.

WILLIAM CROZIER,
Northport, Long Island, N. Y.

FANCY POULTRY.

BEST specimens of all the breeds at reduced prices. Langshans, Ply. Rocks, Brahmas, Leghorns, Pekin Ducks, and Bronze Turkey our specialties. Send for Catalogue before purchasing.

BENSON, MAULE & CO., 223 Church St., Phila, Pa.

CHESTER WHITE PIGS AT HALF PRICE. Pure Bred, from Premium Stock, and very fine. Seven dollars each, or twelve dollars per pair; ten weeks old.

E. M. CARPENTER, Washington Heights, N. Y. City.

NOW IS THE VERY BEST TIME to ship Blooded Cattle, Calves, Sheep, Pigs, Fancy Fowls, and Dogs. We offer first-class stock of the leading breeds at as low prices as can be afforded for the high quality. Don't fail to send for **Burpee's Farm Annual,** and state what is wanted. We refer to hundreds of satisfied customers.

W. ATLEE BURPEE, 221 Church St., Phila., Pa.

POULTRY, PIGS, PHEASANTS, PIGEONS,

Furnished on short notice and at reasonable prices. A specialty of Broken Bone, Oyster Shell, ground Beef Scraps, and Poultry and Animal Medicines. Try our Stone Water Fountains; best fountain in use. Eggs for hatching in their season. Send for price list. J. C. LONG, Jr., & CO., Fanciers' Agency, 62 Courtlandt St., New York.

IMPORTED PERCHERON STALLION for sale, weighs 1,600 lbs. Price low. Also 15 other horses. Send for a description. A. S. BEEKMAN, South Branch, N. J.

The Bryden Concaved Steel Calk Horse Shoe. The most complete shoe made, with welded steel toe calk, and iron heel calks, hammered, not rolled, and equal in wear to hand-made work. This Shoe is easily fitted, hot or cold, has a perfectly level foot bearing, is light and durable, with a low grease to protect the nails from working loose. The cheapest and best Shoe for Horse Railroads, Carriage and Farm Horses, now made. Made in sizes 1 to 5, hind and forward. Send for circulars. THE BRYDEN HORSE SHOE CO., 52 Broadway, N. Y.

VERY IMPORTANT TO SHEEP OWNERS. The new (patented) Sheep Dip, Little's Chemical Fluid. Non-poisonous, Non-corrosive. Will not injure even the eyes of the Sheep. Kills Red Lice, Ticks, Scab Insects, also Ants, Bed-bugs, and Fleas on dogs. Cures Gapes in chickens. Improves growth and quality of wool. The first prize for wool given in London in June last was awarded to wool from sheep that had been dipped in this Fluid. *It is a perfect Deodorizer and Disinfectant.* Send stamp for Prospectus and Testimonials from Australia, New Zealand, California, South America, Buenos Ayres, and South Africa, to T. W. LAWFORD (General Agent), Baltimore, Md., or 15 cents for a sample. Agents wanted in every City and Town. Terms liberal. Advantage over other Dips is it mixes perfectly with **cold** water. 1 gallon makes 100 gallons of Dip.

EUROPEAN EGG FOOD!!!

Will make your hens lay, prevents and cures most of the diseases of poultry, and permanently improves hens, moulting fowls, and young chicks. Packages by mail, post-paid, 50c., 50c., and $1. By freight or express, 6 lb. boxes, $2—25 lb. boxes, $6.25. R. KELLOGG, Sole Proprietor, 228 State St., Hartford, Conn.

Agents: Fancier's Agency, 54 Cortlandt St., New York; W. W. Clark, 1213 North 3d St., Philadelphia, Pa.; Tolman & King, 51 East Lake St., Chicago, Ills.; Whittemore Brothers, 128 So. Market St., Boston, Mass.; John Calvert, Cor. 4th and Howard Sts., San Francisco, Cal.; R. Mackay, Hamilton, Ontario, Canada.

THOROUGHBRED HORSES
AT FLEETWOOD STOCK FARM.
Wishing to reduce my stock, I will sell at reduced prices.
J. W. HUNT REYNOLDS,
Frankfort, Ky.

PEKIN DUCKS for sale, pure bred. Having raised a large number, will make price low, $3.00 per pair.
A. S. BEEKMAN, South Branch, N. J.

GAME FOWL. **SPORTING DOGS,** and Cattle, supplied by J. C. COOPER, Cooper Hill, Limerick, Ireland.

THE CELEBRATED POQUONNOC FARM BRONZE TURKEYS—selected stock—of ten years' breeding. Also **NARRAGANSETT TURKEYS.** Address W. CLIFT, Mystic Bridge, Ct.

RIVERSIDE FARM.—Jerseys, Berkshires, and Cotswolds imported, bred, and for sale. Bronze Turkeys, Pekin Ducks, and Light Brahmas. Send for catalogue.
C. P. MATTOCKS, Portland, Me.

RED FOX, SKUNK, MUSKRAT, &c., &c.—Highest cash prices paid. Send for full circular.
E. C. BOUGHTON, 33 Howard St., N. Y.

A REAL CURE FOR FOOT ROT.

Best & Cheapest.

Buchan's Cresylic Sheep Dip prevents and cures the scab and all parasitic diseases of the skin.

Buchan's Cresylic Ointment is CERTAIN DEATH to the Screw-worm or Grub.

For further particulars, send for price lists and circulars to **KIDDER & LAIRD, 83 John St., New York.**

TWELFTH ANNUAL SALE of Jersey Stock.—Will be sold without reserve, to the highest bidder, at the Farm of the subscriber in New London, Conn., on Thursday, November 6th, at 11¾ o'clock A. M., 55 head of unregistered thoroughbred and grades Jersey Heifers and Cows, and 8 thoroughbred Jersey Bulls, 1 to 4 years old. This stock has all been bred expressly for their butter qualities. 25 of the heifers and cows are now in milk. Several are fresh, desirable family cows.

New London, Oct., 1879. THOMAS FITCH.

MONEY IN POULTRY. 45 Medals and diplomas have been awarded to Prof. A. Corbett, No. 7 Warren St., N. Y., for his new process for hatching and raising poultry in horse manure. Particulars free.

FINE LARGE BUFF COCHIN AND FIRST-class Brown Leghorn Chicks at reasonable prices.
CHAS. FELDMAN, Greencastle, Pa.

☞ **FRIENDS!** If you are in any way interested in

BEES OR HONEY,

We will with pleasure send you a sample copy of our **MONTHLY GLEANINGS IN BEE CULTURE,** with a descriptive price-list of the latest improvements in **Hives, Honey Extractors, Artificial Comb, Section Honey Boxes,** all books and Journals, and everything pertaining to Bee Culture. *Nothing Patented.* Simply send your address on a postal card, *written plainly,* to
A. I. ROOT, Medina, Ohio.

THE CHAMPION

REAPERS & MOWERS.

AWARDED THE HIGHEST HONORS

everywhere, by the best expert Authority, after the most thorough tests as to its capacity and execution.

Manufactured by Whiteley, Fassler & Kelly, The Champion Machine Company, and Warder, Mitchell & Co., Springfield, O.; and The Toronto Reaper & Mower Company, Toronto, Canada.

THE BUREAU OF IMMIGRATION OF VIRGINIA will mail, free, full information as to the Lands and Resources of Virginia to all desiring same.
RICHARD IRBY, GEN. AGENT, Richmond, Va.

Winchester Repeating Fire Arms.

The Best and Most Reliable Arm in the World.

BADGE WON

BY

MAJOR JAMES E. STETSON

in a rapidity and accuracy match, using the Winchester Rifle as a single **Breech Loader** *in competition with the Ward-Burton, Remington, Springfield, Sharps, Peabody, and other rifles.*

LARGE REDUCTION IN PRICES.

	Model '66.	*Model* '73.	*Model* '76.
Sporting Rifle, Octagon Barrel..	$23.00	$27.00	$35.00
" " ½ " " .	23.00	27.00	35.00
" " Round " ..	22.00	25.00	32.00
Carbine.	20.00	24.00	27.00

☞ **Every Variety of Metallic Ammunition at the Lowest Market Rates.**

SEND FOR ILLUSTRATED CATALOGUE.

WINCHESTER REPEATING ARMS CO.,

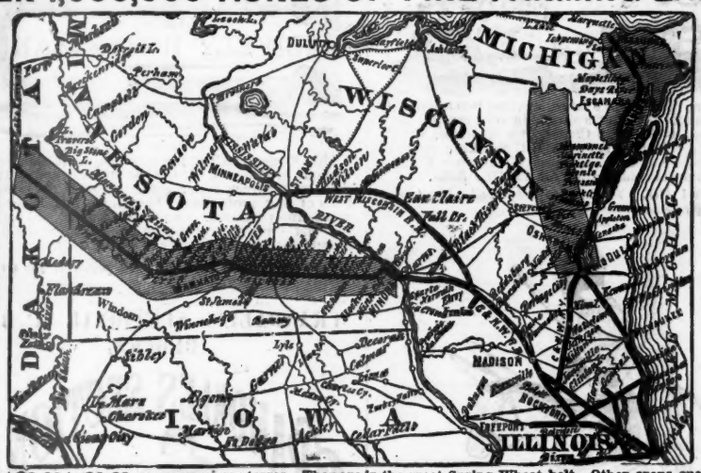
New Haven, Conn., or
245 Broadway, New York.

AGENT FOR PACIFIC COAST:

JOHN SKINKER, 115 Pine St., San Francisco, Cal.

OVER 1,000,000 ACRES OF FINE FARMING LANDS

In Minnesota and Dakota, the Great Wheat Growing States of the North West.



The Atmosphere of this Region is celebrated for its Invigorating and Health-Giving Qualities.

For sale at $2.00 to $6.00 per acre on easy terms. They are in the great Spring Wheat belt. Other crops successfully raised. Free fare and low freights to purchasers. For Guide containing maps, and full information, address

CHAS. E. SIMMONS, Land Com. C. & N. W. Ry. Co., Chicago, Ills.

Perfect Milk Pail

Price $2.00.

Preserves Milk from specks and lumps of **dirt** and **dung**, and from **the odors** of the stable, of the yard, and of the milker, which give the so-called **animal odors.** A seat while milking, holds 14 qts., can not be stepped in, kicked over, nor damaged by the cow; the milk is strained before entering it. If you desire purer, more wholesome and fragrant milk, cream, and butter, than ever before, send $2.00 for a pail, or get circulars and induce the store-keeper to order a dozen.

Address **DAIRY SUPPLY CO.,**
P. O. Box 416. **261 & 263 Greenwich St., N. Y.**
Also dealers in all kinds of Dairy Supplies.

LILLY'S PATENT BUTTER-WORKER

is now acknowledged to be the only complete and effective self-feeding machine in the market, mixing the salt and imitating hand-work to perfection. Send for circular and see the list of prominent dairymen now using them.

C. H. R. TRIEBELS,
316 Race St., Phila., Pa

Rectangular and Square **BOX CHURNS**

Cheapest and Best. No inside fixtures, and *always reliable.* Six sizes of each kind made. Three sizes of the *Lever* Butter Worker made. Best material used, and every Churn and Butter Worker *warranted* exactly as represented. One Churn at wholesale where we have no agent. *Send Postal for Circulars.*

CORNISH & CURTIS, Fort Atkinson, Wis.

$100. CHALLENGE! $100.
MRS. B. SMITH'S BUTTER COLOR.

We offer above to any that will excel it in Color or Taste. Harmless; and the Butter keeps the longest and sells at Highest Price. Send for Dairymen's Receipt Book, Free. MRS. B. SMITH, 72 N. 4th St., Phila., Pa.

SOLD AT GOLD PRICES!
The Original Improved
UNION CHURN.

Introduced 14 years ago, and the acknowledged standard churn of the country. Easily operated and easily cleaned, making beautiful butter by the extra working of the dasher on the butter while churning. Our Union Churn has been awarded the first prize over all competitors at twelve different State Fairs. Every Churn warranted. Address TIFFIN UNION CHURN CO., Tiffin, Ohio.

E. & O. WARD, PRODUCE COMMISSION MERCHANTS.

(ESTABLISHED 1845.)

Send for Circular of Great Value, giving full instructions for shipping

POULTRY, GAME, BUTTER, and PRODUCE.
No. 279 Washington St., N. Y.
Ref., *Irving National Bank*, New York City.

L. E. RANSOM, 34 MAIDEN LANE, N. Y. CITY.
Perfect Butter Color at lowest prices.

"A Climate of the Mountains with a Soil of the Valleys."

The St. Paul & Sioux City Railroad

Traverses the wheat garden and Indian corn region of the Northwest, Southwestern Minnesota and Northwestern Iowa. Not so far North as to be limited in variety of production. Not so far South as to be subject to malaria. 1,000,000 acres of unequalled farming and stock-raising lands with unsurpassed natural advantages for location, climate, soil, and nearness to market. They produce 20 to 40 bushels of wheat, 46 to 60 bushels of Indian corn; 250 to 300 bushels of potatoes; 175 to 200 gallons Amber Cane syrup to the acre. Natural blue joint meadow grass. Undulating prairie of deep rich loam. 1,000 to 1,200 feet above sea level. Lakes and streams, numerous churches, schools, mills, and thrifty villages.

Choice lands on long credit or large discount for cash. For full particulars, address

JAMES H. DRAKE,
Land Commissioner, St. Paul Minn.

TEAS. AHEAD ALL THE TIME. The very best fresh goods direct from the *importers* at *half* the usual cost. Best plan to Club Agents and large buyers. All express charges paid. Quality guaranteed. New terms free.

THE GREAT AMERICAN TEA CO.,

P. O. Box 4235. **31 & 33 Vesey St., New York.**

The Cheapest Book in the World!

A SPECIAL OFFER.

THE

AMERICAN DIAMOND DICTIONARY,

Contains 30,000 Words, 674 double-column Pages, Illustrated with 250 Engravings, and Handsomely Bound in Cloth and Gilt.

Price, 30 cts., or Two for 50 cts.

This is the same book that other parties are offering as a seven dollar book. It is not a seven dollar book, but at the price we offer it, is one of the cheapest books in the world. It is a library of language in itself. It contains hundreds of new words, such as are daily used in speech and writing, a full explanation of all the abbreviations used in writing and printing. An alphabetical list of foreign words used as proverbs and mottoes in English speech and writing, with the English translations, and pictures innumerable make meanings plain, even to children. Sent by mail, prepaid, on receipt of price. One and three-cent stamps taken. SPECIAL TERMS TO AGENTS Address

WILDES & CO., Milk St., Boston, Mass.

RELIEF FOR HARD TIMES!!

A Sure Investment!!

BUY LAND OF

THE UNION PACIFIC RAILROAD COMPANY,

This Company has **3,000,000 acres of the Best in the world;** for sale in **NEBRASKA, at Prices** and on **Terms** that make it **cheaper to own a farm** than be without. **Short Winters! Long Summers! Come and see. Cheap fare from all principal points.** Write for information. **Sent Free** everywhere.

LEAVITT BURNHAM,

Land Commissioner U. P. R. R. Co.,

Cor. 9th and Farnam Sts., **Omaha, Neb.**

☞ Refer to this advertisement.

250 MARYLAND FARMS, in Tracts from 30 to 300 acres. Near railroad and navigable Salt-water (with all its luxuries), in Talbot Co., Md. Climate mild and healthy. Titles good. New Pamphlet and Map showing *location*, free. Address C. E. SHANAHAN, Atty., Easton, Md.

CALIFORNIA LANDS, large or small tracts; homes or investments for sale by McAFEE BROTHERS, 202 Sansome St., San Francisco, Cal.

BUY MARYLAND FARMS! $7 TO $25 per acre. Catalogues sent free. H. P. CHAMBERS, Federalsburg, Md.

FARMS. 100 Delaware Fruit and Grain Farms cheap. Catalogues free. A. P. GRIFFITH, Smyrna, Del.

THOSE wishing to sell, purchase, or exchange property with the view of emigration, are invited to address A. F. COQUILLARD, South Bend, Ind.

52 CARDS with Name—Snowflake, Royal, Diamond, Roseate, Marble, &c., 10 cts.; in case, 12 cts. NOVELTY CARD CO., Wallingford, Conn.

18 ELEGANT NEW STYLE CHROMO CARDS, with name, 10c., post-paid. GEO. I. REED & CO., Nassau, N. Y.

50 CHROMO, SNOWFLAKE, AND LACE CARDS, with name, 10c. 40 all chromos, 10c. STAR PRINTING CO., Northford, Ct.

60 Perfumed Chromo &c. cards, name on, 10c. 42 Mixed cards & fine Pocket knife, 25c. Autograph Album 20c. Game Authors, 15c. 35 Fun cards 10c. Clinton Bros., Clintonville, Ct.

20 New Styles Chromo Cards, 10c., or 25 New Styles Mixed, 10c., post-paid. J. B. HUSTED, Nassau, N. Y.

Agricultural

Insurance Company, of Watertown, N. Y.

Capital $200,000.00. Net Surplus, $216,645.62. Total assets for the security of Policy-holders, January 1st, 1879, $1,150,063.99. Insures only Farm Property and Residences against fire and lightning. Takes no business risks.

A WONDERFULLY INTERESTING BOOK, ENTITLED

THE SCHOOL GARDEN.

BY DR. SCHWAB, DIRECTOR OF THE VIENNA MILITARY GYMNASIUM, ETC.

From the German by Mrs. Horace Mann.

50 cts. by mail. 5 copies $2, 12 copies $4.

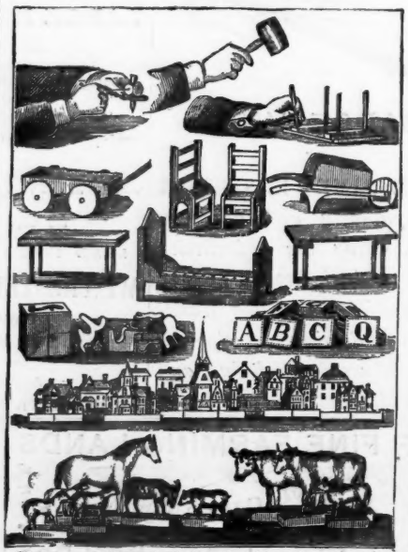
M. L. HOLBROOK, Publisher, 13 & 15 Laight St., New York.

FOR THE BOYS AND GIRLS.

Crandall's Toys and Games.

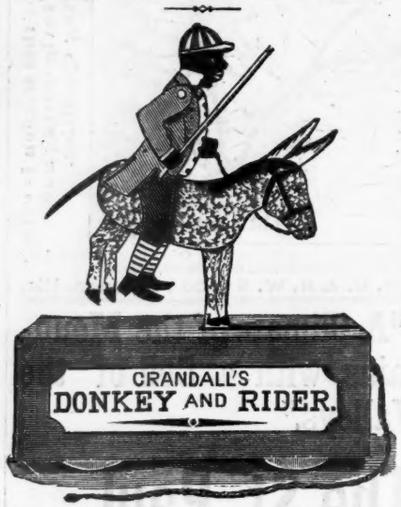
ASK YOUR NEAREST TOY DEALER FOR THEM.

CRANDALL'S TREASURE BOX.



This is one of Crandall's latest and best inventions. It is not a single toy, but a dozen in one, comprising a Wagon, Top, Bedstead, 2 Chairs, Wheelbarrow, Mallet, Bench, Table, Puzzle, Set of A B C Blocks, a group of nine Domestic Animals, and a pretty, Suburban Village. A most delightful combination for the little folks.

Price, $1.00. *Too large to go by mail. Expressage to be paid by receiver.*



This is a most comical and pleasing Mechanical Toy, being a good specimen of Barnum's Tricky Mule. By the simple motion of drawing around, the Mule seems to be trying to throw its dusky Rider, who assumes various grotesque positions, and has a lively time to keep his seat.

The toy is *strongly* made, of wood, beautifully painted, and is not easily broken or got out of order; it can be taken apart and packed in the box on which it performs.

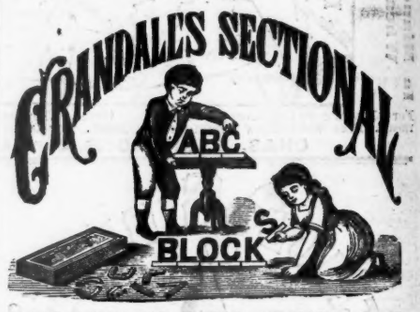
Price, 50 Cts.; *by mail, prepaid,* **70 Cts.**

CRANDALL'S LIVELY HORSEMAN.

This Mechanical Toy has no clock-work, and performs without winding up. It has the strength and all the features of a Circus Rider going through the wonderful feats of that profession. The Horse and Rider are of wood, finely painted. Can be taken apart and packed in the box on which it performs. A child can draw it around without any danger of breaking it.

Price, 50 Cts.; *by mail, prepaid,* **70 Cts.**

CRANDALL'S SECTIONAL A B C BLOCKS.



HAPPY TIMES FOR LITTLE SCHOLARS. THEY LEARN WHILE THEY PLAY.

All the letters of the Alphabet can be made with this set of Sectional Blocks. The ingenuity of the young operator is developed, and, while placing together the various sections of these attractive blocks, the little boy or girl almost unconsciously learns the Alphabet. Many pleasing structures can also be made by joining the pieces in various ways. The blocks are very brilliantly colored with fine paint, and are made strong and durable. A handsome illustrated chart goes with each box, and adds brilliancy to the toy.

Price, 75 cts.; *by mail, prepaid,* **$1.00.**

PRICE LIST.

	Price.
Crandall's Performing Animals	$3.00
Crandall's "Happy Family"	$2.00
Crandall's "Heavy Artillery"	$3.00
Crandall's Treasure Box	$1.00

Expressage of either of the above to be paid by the receiver.

	Price.	*By Mail, Prepaid.*
Crandall's New Acrobats	$ .50	$ .65
Crandall's Expression-Blocks	.50	.65
Crandall's Bridge	.75	1.25
Crandall's Sectional ABC Blocks	.75	1.00
Crandall's Chinese Blocks	1.00	1.25
Crandall's First Reading Blocks	.25	.40
Crandall's Donkey and Rider	.50	.70
Crandall's District School	1.00	1.20
Crandall's Wide-Awake Alphabet	1.00	1.30
Crandall's Bo-Peep	.25	.30
Crandall's Toy Horse	.25	.30
Crandall's Lively Horseman	.50	.70
Crandall's Masquerade-Blocks	.75	.90
Crandall's Improved Gymnasts	.25	
Crandall's Two Jolly Blacks	.50	.70
Crandall's Building Blocks, No. 1	1.00	1.25
Crandall's Building Blocks, No. 3	.75	.90

ORANGE JUDD COMPANY, Sole General Agents, 245 BROADWAY, NEW YORK.